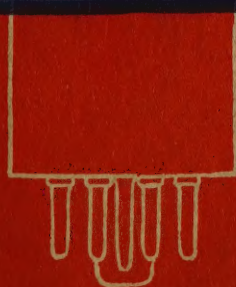


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Radio Tube Data and Substitution Chart

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RADIO TUBE DATA AND SUBSTITUTION CHART



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Raytheon's recognized leadership in the electronic field is based on precepts of painstaking research and manufacturing proficiency. Raytheon has long dedicated manifold and skilled talents to the advancement of the science of electronics. For more than two decades Raytheon has been the foremost specialist in the manufacture of radio and electronic tubes. Numerous developments and improved techniques have continually been attained and adopted. In the large Raytheon plants and laboratories of today many of the latest and far-reaching electronic refinements have been developed — and to the further pursuit of technical achievement devoted research is constantly maintained.

Raytheon radio-electronic tubes are of the highest quality. In manufacture the most constant care is given to their every precision detail by expert tube technicians. Before each tube receives the Raytheon brand of approval it must completely satisfy the most rugged and exacting Raytheon specifications of tube testing. Raytheon tubes have a *plus-extra* performance quality — infixed through Raytheon craftsmanship.

RAYTHEON tubes fulfill the demands of the most exacting electronic applications. RAYTHEON tubes fulfill the demands of the most discriminating in radio performance. For complete satisfaction install RAYTHEONS.



INTRODUCTION

Raytheon through the years has continued to furnish the results of its abundant study to those rendering service and research to the radio trade.

In publishing this new edition of Raytheon Tube Data a very comprehensive summary of the vital information on American Receiving Tubes has been made. A considerable amount of information not previously available has now been organized and included. Every currently used tube bearing RMA type designation appears with its essential features and operating characteristics. A vast quantity of new tube types has been incorporated for the first time, along with many new special purpose types. All these will be found arranged in proper RMA sequence. For each active tube type listed complete information on the following is offered, effectively described and diagrammed:

Electrical Characteristics

Basing Connections

Style and Size of Base

Style and Size of Bulb

Outline Dimension of Complete Tube

The technical data on Raytheon Flat Hearing Aid Tubes also have been introduced into this manual. These tubes are the acknowledged choice of Hearing Aid manufacturers and are used extensively in their products.

During the war period shortages in many of the popular types of receiving tubes have developed. A most complete substitution chart therefore comprises a part of this booklet. In this chart an attempt has been made to work out every conceivable tube type substitution. Some of these substitutions have been previously published, but never in so complete a form as here. This substitution chart should prove indispensable to those concerned in the servicing and maintenance of radio and electronic equipment.

The Raytheon Radio Receiving Tube Division publishes this newest edition of Radio Tube Data, now all inclusive, confident that it will prove of even greater usefulness and value than its predecessors. This is only one of many Service and Sales Helps available to the Trade. For complete information, consult your nearest Raytheon Distributor.

BEFORE USING THE TUBE DATA CHART

Please read the following notes carefully. They explain the symbols and abbreviations which are used.

The following system for describing the type of base and for referring to the base connection diagram is used in the column headed "Basing Data":

The symbol at the left of the hyphen refers to the base connection diagram.

The symbol at the right of the hyphen indicates the type of base and the number of contact pins in accordance with the following:

First Letter — M=Miniature Base
O=Octal Base
L=Locking Base
S=Standard Base

Second Letter — B=Button Base (a shell is not incorporated)
M=Medium Shell (bakelite)
S=Small Shell (bakelite)
W=Wafer Base (metal tube or bantam tube with metal shell)
GT=Intermediate (bantam) Shell (bakelite)

Numeral indicates the number of pins in base.

"B" after numeral indicates bayonet pin in base.

Examples:

4C-SS4B Diagram 4C, standard small shell with bayonet, 4 pin.
6G-SM6 Diagram 6G, standard medium shell, 6 pin.
7Q-OW7 Diagram 7Q, octal wafer base, 7 pin.

The column headed "Max Size View" shows the number of the tube outline drawing which gives dimensions. Although the letter in the symbol is arbitrarily chosen, the number refers to the bulb size. Thus 14C means that the tube has a size 14 bulb and that its outline drawing and dimensions are given in the "C" drawing for size 14 bulbs. Since the unit of bulb size is $\frac{1}{8}$ ", a size 14 bulb is nominally $1\frac{3}{4}$ " at its largest diameter.

* Indicates that capacitance is measured with standard tube shield connected to cathode. In the case of a metal type, the metal shell is connected to cathode.

"C" after figure in "Mutual Conductance" column indicates that value is for conversion transconductance. (Used for converter types only.)

"S" after figure in "Plate Volts" column indicates that value shown is anode supply voltage and that it is applied through the indicated value of G_2 resistor. (Also used only for converter types.)

Capacities shown for converter types are for the mixer section only.

Values of Plate Ma., Screen Ma., and Output Watts for push-pull operation are for two tubes, and value of load resistance is from plate to plate.

Values of Grid Volts for filament type tubes are measured from the negative filament terminal.

Values of Cutoff Bias are approximate.

TYPE	DESIGN	CATHODE HTR OR FIL TYPE	BASING DATA	MAX SIZE VIEW	CAPACITIES G-P IN OUT mmfds mmfds mmfds	USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE			
00A	TRIODE	FIL	5.0	.25	4D-SM4B	14B	8.5	3.2	2.0	DETECTOR	45	0	1.5	20	30000	666		00A			
01A	TRIODE	FIL	5.0	.25	4D-SM4B	14D	8.1	3.1	2.2	AMP CL A	135	-9	3	8	10000	800		01A			
0A3/VR75	DIODE	COLD			4AJ-OS8	12E	GAS FILLED			VOLT REG	75v	OUTPUT THROUGH A CURRENT RANGE 5-30ma							0A3/VR75		
0A4C	GAS TRI	COLD			4V-OS6	12E				RELAY TUBE								0A4C			
0B3/VR90	DIODE	COLD			4AJ-OS8	12E	GAS FILLED			VOLT REG	90v	OUTPUT THROUGH A CURRENT RANGE 5-30ma							0B3/VR90		
0C3/VR105	DIODE	COLD			4AJ-OS8	12E	GAS FILLED			VOLT REG	105v	OUTPUT THROUGH A CURRENT RANGE 5-30ma							0C3/VR105		
0D3/VR150	DIODE	COLD			4AJ-OS8	12E	GAS FILLED			VOLT REG	150v	OUTPUT THROUGH A CURRENT RANGE 5-30ma							0D3/VR150		
0Z4 0Z4C	TWIN DIODE	COLD			4R-OW6 4R-OT5	8D 7A				FULL WAVE RECTIFIER	300	RMS MAX	75 ma	MAX 30 ma	MIN	TUBE DROP 24v		0Z4 0Z4C			
0Z4A/1003	TWIN DIODE	COLD			4R-OW6	8D				FULL WAVE RECTIFIER	265	RMS MAX	85ma MAX — 30ma MIN. TUBE DROP 24v CONDITION I = SINGLE TUBE OPERATION (Applies to above)					0Z4A/1003			
										RECTIFIER	365	RMS MAX	85ma MAX — 30ma MIN. TUBE DROP 24v CONDITION II = RESISTANCE PARALLEL OPERATION (Applies to above)								
1A3	DIODE	HTR	1.4	.015	5AP-MB7	5B				DETECTOR	117	MAX	0.5 MAX					1A3			
1A4P	PENTODE	FIL	2.0	.06	4M-SS4	12H	.007*	5.0*	12*	AMP CL A	180	-3	67.5	2.3	0.8	1 MEG	750	-15	1A4P		
1A4-T	TETRODE	FIL	2.0	.06	4K-SS4	12H	.012*	4.6	11	AMP CL A	180	-3	67.5	2.3	0.7	.96MEG	750	-15	1A4-T		
1A5GT/G	PENTODE	FIL	1.4	.05	6X-OGT7	9H				POWER AMP CLASS A	90	-4.5	90	4.0	0.8	.3 MEG	850	.115	1A5GT/G		
											85	-4.5	85	3.5	0.7	.3 MEG	800	.100			
1A6	HEPTODE	FIL	2.0	.06	6L-SS6	12H	.25*	10.5	9.0	OSC SECT MIXER	135S	.05MEG	2.3	2.3	2.4	GRID #2 RES.	.02 MEG	-22.5	1A6		
											180	-3	67.5	1.3		.5 MEG	300C				
1A7C 1A7CT	HEPTODE	FIL	1.4	.05	7Z-OS8 7Z-OW8	9P 9F	.30*	6.5*	11*	OSC SECT MIXER	90	.2 MEG	1.2	0.55	0.6	.6 MEG	250C	-3	1A7C 1A7CT		
											90	0	45			1.5MEG	650	-8			
1B4/951	PENTODE	FIL	2.0	.06	4M-SS4	12H	.007*	5.0	11	AMP CL A	180	-3	67.5	1.7	0.6	1 MEG	600	-8	1B4/951		
											90	-3	67.5	1.6	0.7	1 MEG	600	-8			
1B5/25S	DUO-DI TRIODE	FIL	2.0	.06	6M-SS6	12B	3.6	2.0	3.0	AMPLIFIER CLASS A	135	-3	0.8	20	35000	575			1B5/25S		
1B7C 1B7CT	HEPTODE	FIL	1.4	.1	7Z-OS8 7Z-OW8	9P 9F	.34*	7.0*	7.5*	OSC SECT MIXER	90	.2 MEG	1.6	1.3		.35MEG	350C	-14.5	1B7C 1B7CT		
											90	0	45			0.24	275				
1B8CT	DI-TRI PENTODE	FIL	1.4	0.1	8AJ-OS8	9F				TRI CL A PENT CL A	90	-6.0	90	6.3	1.4	66	1150	.210	14000	1B8CT	
1C5GT/G	PENTODE	FIL	1.4	.1	6X-OGT7	9H				POWER AMP CLASS A	90	-7.5	90	7.5	1.6	180	.12MEG	1550	.240	8000	1C5GT/G
											83	-7	83	7.0	1.6	165	.11MEG	1500	.200	9000	
1C6 1C7G	HEPTODE	FIL	2.0	.12	6L-SS6 7Z-OS8	12H 12F	.3*	10	10	OSC SECT MIXER	180S	.05MEG	3.3	2.0		GRID #2 RES.	.02 MEG	-14	1C6 1C7G		
											180	-3	67.5	1.5		.7 MEG	325C				
1D5G-P	PENTODE	FIL	2.0	.06	5Y-OS7	12F	.007*	5.0*	11*	AMPLIFIER CLASS A	180	-3	67.5	2.3	0.8	1 MEG	750	-15	1D5G-P		
											90	-3	67.5	2.2	0.9	.6 MEG	720	-15			
1D5CT	TETRODE	FIL	2.0	.06	5R-OS7	12F	.012*	4.6*	11*	AMP CL A	180	-3	67.5	2.3	0.7	.96MEG	750	-15	1D5CT		
1D7C	HEPTODE	FIL	2.0	.06	7Z-OS8	12F	.30*	10*	14*	OSC SECT MIXER	180S	.05MEG	2.3	2.3	2.4	GRID #2 RES.	.02 MEG	-22.5	1D7C		
											180	-3	67.5	1.3		.5 MEG	300C				

SEE PAGE 5 FOR DATA CHART REFERENCE NOTES

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TYPE	DESIGN	CATHODE TYPE	HTR OR FIL VOLTS	BASING DATA	MAX SIZE VIEW	CAPACITIES G-P mmfd	IN mmfd	OUT mmfd	USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
1D8CT	DI-TRI PENTODE	FIL	1.4	.1	8AJ-OGT8	9J			TRI CL A PENT CL A	90 90	0 -9	90	1.1 5.0	1.0	25	43500 .2 MEG	575 925	.200	12000		1D8CT
1E4G	TRIODE	FIL	1.4	.05	5S-OS7	9N	2.4	2.4	AMPLIFIER CLASS A	90 90	-3 0		1.4 4.5		14.5 14.5	19000 11200	760 1300				1E4G
1E5G-P	PENTODE	FIL	2.0	.06	5Y-OS7	12F	.007*	5.5*	AMPLIFIER CLASS A	180 90	-3 -3	67.5 67.5	1.7 1.6	0.6 0.7	975 600	1.5MEG 1 MEG	650 1425			-8 -8	1E5G-P
1E7G	TWIN PENTODE	FIL	2.0	.24	8C-OS8	12E			CL A 1 SECT CL A 2 SECT	135 135	-4.5 -7.5	135 135	7.5 14	2.2 4.0		.26MEG	16000 24000	.290 .575			1E7G
IF4 IF5G	PENTODE	FIL	2.0	.12	5K-SM5 6X-OM7	14D 14C			PR AMP CL A CL AB 2 TUBE	135 180	-4.5 -7.5	135 180	8.0 19	2.4 5.5		.20MEG	1700 20000	.310 1.25	16000 20000		IF4 IF5G
IF6 IF7G-H	DUO-DI PENTODE	FIL	2.0	.06	6W-SS6 7AD-OS8	12H 12F	.007* .01*	4 3.8*	9 9.5*	180	-1.5	67.5	2.2	0.7		1 MEG	650			-12	IF6 IF7G-H
1G4CT/G	TRIODE	FIL	1.4	.05	5S-OGT7	9H			AMP CL A	90	-6		2.3		8.8	10700	825				1G4CT/G
1G5G	PENTODE	FIL	2.0	.12	6X-OM7	14C			POWER AMP CLASS A	135 90	-13.5 -6	135 90	8.7 8.5	2.5 2.5		.16MEG .13MEG	1550 1500	.550 .250	9000 8500		1G5G
1G6CT/G	TWIN TRIODE	FIL	1.4	.1	7AB-OGT8	9H			CL A 1 SECT CL B 2 SECT	90 90	0 0		1.0 2.0		30 MAX SIG PLATE CUR	45000 -14ma	675	.675	12000		1G6CT/G
1H4G	TRIODE	FIL	2.0	.06	5S-OS6	12E	5.0*	3.0*	AMP CL A CL B 2 TUBE	180 157.5	-13.5 -15		3.1 1.0		9.3	10300	900	(SEE TYPE 30 ALSO) 2.1 8000			1H4G
1H5G 1H5CT/G	DIODE TRIODE	FIL	1.4	.05	5Z-OS7 5Z-OW7	9P 9F	1.1	.36	AMPLIFIER CLASS A	90	0		0.15		65	.24MEG	275				1H5G 1H5CT/G
1H6G	DUO-DI TRIODE	FIL	2.0	.06	7AA-OS8	12E	3.6*	2.0*	AMPLIFIER CLASS A	135	-3		0.8		20	35000	575				1H6G
1J5G	PENTODE	FIL	2.0	.12	6X-OM7	14C			PR AMP CL A	135	-16.5	135	7.0	2.0	100	.1 MEG	1000	.45	13500		1J5G
1J6G	TWIN TR	FIL	2.0	.24	7AB-OS8	12E			CLASS B TWO SECT	135 135	0 -6		10 NO SIG 0.1 NO SIG					2.1 1.6	10000 10000		1J6G
1L4	PENTODE	FIL	1.4	0.05	6AR-MB7	5B	0.008	3.6	AMP CL A	90 90	0 0	90 67.5	4.5 2.9	2.0 1.2		0.35 0.6	1025 925			-8 -6	1L4
1LA4	PENTODE	FIL	1.4	.05	5AD-L8	9A			POWER AMP CLASS A	90 85	-4.5 -4.5	90 85	4.0 3.5	0.8 0.7		.3 MEG .3 MEG	850 800	.115 .100	25000 25000		1LA4
1LA6	HEPTODE	FIL	1.4	.05	7AK-L8	9A	.40	7.7	OSC SECT MIXER	90 90	.2 MEG 0		1.2 0.55	0.6		.6 MEG	250C			-3	1LA6
1LB4	PENTODE	FIL	1.4	.05	5AD-L8	9A			PR AMP CL A	90 45	-9 -4.5	90 45	5.0 1.6	1.0 0.3		.2 MEG .3 MEG	925 650	.200 .035	12000 20000		1LB4
1LB6	HEPTODE	FIL	1.4	0.05	8AX-L8	9A	0.20	8.0	MIXER SECT OSC SECT	90 OSC	0 Grid Volt = 0	67.5 OSC	0.40 2.2			2 MEG	100C			-4.5 -4.5	1LB6
1LC5	PENTODE	FIL	1.4	0.05	7AO-L8	9A	0.007	3.2	AMP CL A	90 45	0 0	45 45	1.15 1.10	0.20 0.25		1.5 0.7	775 750			-3 -3	1LC5
1LC6	HEPTODE	FIL	1.4	0.05	7AK-L8	9A	0.28	9.0	MIXER SECT OSC SECT	90 45	0 .2 MEG	35 45	0.75 1.4	0.70		.65	275C			-3	1LC6
1LD5	DI-PENT	FIL	1.4	0.05	6AX-L8	9A	0.20	3.2	AMP CL A	90 45	0 0	45 45	0.60 0.55	0.10 0.12		0.95 0.90	600 550				1LD5
1LE3	TRIODE	FIL	1.4	0.05	4AA-L8	9A	1.7	1.7	AMP CL A	90 90	-3 0		1.4 4.5			19000 11200	760 1300				1LE3

SEE PAGE 5 FOR DATA CHART REFERENCE NOTES

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TYPE	DESIGN	TYPE	CATHODE HTR OR FIL	AMP	BASING DATA	MAX SIZE VIEW	CAPACITIES			USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
							G-P mmfd	IN mmfd	OUT mmfd													
1LH4	DI-TRI	FIL	1.4	.05	5AG-L8	9A	1.2	2.0	2.4	AMP CL A	90	0	0.15		65	.24MEG	275					1LH4
1LN5	PENTODE	FIL	1.4	.05	7AO-L8	9A	.007	3.4	8.0	AMP CL A	90	0	90	1.6	0.35	880	1.1MEG	800			-4.5	1LN5
1N5GT/G	PENTODE	FIL	1.4	.05	5Y-OS7 5Y-OW7	9P 9F	.007*	3.0	10.0	AMP CL A	90	0	90	1.2	0.3	1160	1.5MEG	750			-4	1N5GT/G
1N6G	DI-PENT	FIL	1.4	.05	7AM-OS8 7AM-OW8	9N 9H				PR AMP CL A	90	-4.5	90	3.4	0.7		.3 MEG	800	.10	25000		1N6G
1N6GT																					1N6GT	
1P5GT/G	PENTODE	FIL	1.4	.05	5Y-OW7	9F	.007*	3.0	10.0	AMP CL A	90	0	90	2.3	0.7		.8 MEG	750			-12	1P5GT/G
1Q5GT/G	BEAM PWR AMP	FIL	1.4	.1	6AF-OGT7	9H				POWER AMP CLASS A	90 85	-4.5 -5.0	90 85	9.5 7.0	1.3 0.8			2200 1950	.27 .25	8000 9000		1Q5GT/G
1R4/1294	DIODE	HTR	1.4	0.15	4AH-L8	9A				DETECTOR	10 MAX	5.0 MAX										1R4/1294
1R5	HEPTODE	FIL	1.4	.05	7AT-MB7	5B	.4	7.0	7.0	OSC SECT MIXER	OSC GRID RES 90 0	OSC GRID RES -1.1 MEG 67.5 0	1.7 1.7	3.0	.5 MEG 300C						-15	1R5
1S4	PENTODE	FIL	1.4	.1	7AV-MB7	5B				PR AMP CL A	90 45	-7 -4.5	7.4 3.8	1.4 0.8	.1 MEG .1 MEG	1575 1250	.270 .065	8000 8000				1S4
1S5	DIODE PENTODE	FIL	1.4	.05	6AU-MB7	5B				DETECTOR AMP CL A	67.5	0	67.5	1.6	0.4	.6 MEG	625					1S5
1SA6GT	PENTODE	FIL	1.4	0.05	6BD-OW8	9E	0.01	5.2	8.6	AMP CL A	90 45	0 0	67.5 45	2.45 1.10	0.68 0.30	0.8 0.7	970 750			-5.5 -3.5	1SA6GT	
1SB6GT	DI-PENT	FIL	1.4	0.05	6BE-OS7	9H	0.25	3.2	3.0	DET AMP CL A	90 45	0 0	67.5 45	1.45 0.6	0.38 0.16	0.7 0.9	665 500					1SB6GT
1T4	PENTODE	FIL	1.4	.05	6AR-MB7	5B	.01	3.6	7.5	AMP CL A	90 45	0 0	67.5 45	3.5 1.7	1.4 0.7	.5 MEG .35MEG	900 700			-16 -10	1T4	
1T5GT	BM PWR	FIL	1.4	.05	6X-OGT7	9H				PR AMP CL A	90	-6	90	6.5	0.8		1150	.17	14000			1T5GT
1-V	DIODE	HTR	6.3	.3	4G-SS4	12B				H W RECT	325 RMS MAX	45 DC MAX	TUBE DROP 20v AT 90ma DC									1-V
2A3	TRIODE	FIL	2.5	2.5	4D-SM4	16B				PR AMP CL A PUSH-PULL CL AB 2 TUBE	250 300 300	-45 -62 SELF	60 80 80	4.2 800	5250	3.5 15 10	2500 3000 5000					2A3
2A4G	GAS TRI	FIL	2.5	2.5	5S-OS7	12E				THYRATHRON	200 RMS MAX	100 DC MAX	TUBE DROP 12v							-9		2A4G
2A5	PENTODE	HTR	2.5	1.75	6B-SM6	14D		TRIODE CONNECTION		PR AMP CL A CL AB 2 TUBE	250 350	-20 -38	31 48	6.8 (SEE TYPE 6F6G ALSO)	2600	.85 13.0	4000 6000					2A5
2A6	DUO-DI TRIODE	HTR	2.5	.8	6G-SS6	12H	1.7	2.0	3.5	AMPLIFIER CLASS A	250	-2	0.9	100	91000	1100						2A6
2A7 2A7S	HEPTODE	HTR	2.5	.8	7C-SS7 7C-SS7	12H	.3*	8.5	9.0	OSC SECT MIXER	250S 250	.05MEG -3	4.0 3.5	2.7	GRID #2 RES .36MEG	.02 MEG 550C					-35	2A7 2A7S
2B7 2B7S	DUO-DI PENTODE	HTR	2.5	.8	7D-SS7 7D-SS7	12H	.007*	3.5	9.5	AMPLIFIER CLASS A	250 100	-3 -3	125 100	9.0 5.8	2.3 1.7	.65MEG .30MEG	1125 950			-21 -17	2B7 2B7S	
2C22	TRIODE	HTR	6.3	0.3	4AM-OW8	9S	3.6	2.2	0.7	AMP CL A	300	-10.5	11	20	6600	3000						2C22
2E5	ELEC RAY	HTR	2.5	.8	6R-SS6	12B				TUNING IND	250 THRU 1 MEG, TARGET 250v, GRID 0v FOR 90°, -8v FOR 0°											2E5
2S/4S	DUO DIODE	HTR	2.5	1.35	5D-SS5					DETECTOR			40 APPROX PER PLATE AT 50v DC									2S/4S

SEE PAGE 5 FOR DATA CHART REFERENCE NOTES

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TYPE	DESIGN	CATHODE TYPE	HTR OR FIL VOLTS	AMPS	BASING DATA	MAX SIZE VIEW	CAPACITIES C-P IN OUT mmfd mmfd mmfd	USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
2W3GT	DIODE	FIL	2.5	1.5	4X-OW5	9E		H W RECT	350 RMS MAX	55 DC MAX										2W3GT
2X2/879	DIODE	HTR	2.5	1.75	4AB-OS4	12H		H W RECT	4500 RMS MAX	7.5 DC MAX										2X2/879
3A4	BM PWR	FIL	1.4	0.2	7B-MB7	5B	0.2 4.8 4.2	PR AMP CL A	150 135	-8.4 -7.5	90 90	13.3 14.8	2.2 2.6		0.10 0.09	1900 1900	700 600	8000 8000		3A4
3A5	TWIN TRIODE	FIL	1.4 or 2.8	.22 .11	7BC-MB7	5B	3.2L 0.9L 1.0L 3.2R 0.9R 1.0R	H F AMP	90	-2.5		3.7		15	8300	1800				3A5
3A8GT	DI-TRI PENTODE	FIL	1.4 or 2.8	.1 .05	8AS-OGT8	9L	2.0 2.6* 4.2 .012 3.0 10*	TRI CL A PENT CL A	90 90	-FIL -FIL	90	0.20 1.5	0.5		.20MEG .8 MEG	325 750				3A8GT
3B5GT	BM PWR	FIL	1.4 or 2.8	0.10 0.05	7AP-OGT7	9H	PARALLEL FIL SERIES FIL	PR AMP CL A	45 67.5	-4.5 -7	45 67.5	4.4 6.7	0.3 0.5		0.1 0.1	1400 1500	.070 .180	8000 5000		3B5GT
3B7/1291	TWIN TRIODE	FIL	1.4	.22	7BE-L8	9A	2.6L 1.4L 1.8L 2.6R 1.4R 2.6R	AMP OSC CLASS B	135 90	0		19 10.4	20	20	1900 1850	1.5 1.0	16000 8000			3B7/1291
3C5GT	BM PWR	FIL	1.4 or 2.8	0.1 0.05	7AP-OGT7	9H	PARALLEL FIL SERIES FIL	PR AMP CL A	90 90	-9 -9	90 90	6 6	1.4 1.4		1550 1450	.240 .260	10000 10000			3C5GT
3D6/1299	BM PWR	FIL	1.4 or 2.8	.220 .110	6BB-L8	9A	PARALLEL FIL SERIES FIL	PR AMP CL A	150 135	-4.5 -4.5	90 90	9.8 9.8	1.0 1.2		2400 2400	.600 .500	14000 12000			3D6/1299
3LE4	BM PWR	FIL	1.4 or 2.8	0.1 0.05	6BA-L8	9A	PARALLEL FIL SERIES FIL	PR AMP CL A	90 90	-9 -9	90 90	10.0 8.8	2 1.8		0.10 0.11	1700 1600	.325 .300	6000 6000		3LE4
3LF4	BM PWR	FIL	1.4 or 2.8	0.1 0.05	6BA-L8	9A	PARALLEL FIL SERIES FIL	PR AMP CL A	90 90	-4.5 -4.5	90 90	9.5 8.0	1.3 1.0		0.75 0.80	2200 2000	.270 .230	8000 8000		3LF4
3Q4	BM PWR	FIL	1.4 or 2.8	0.1 0.05	7BA-MB7	5B	PARALLEL FIL SERIES FIL	PR AMP CL A	90 90	-4.5 -4.5	90 90	9.5 7.7	2.1 1.7		0.10 0.12	2150 2000	.250 .240	10000 10000		3Q4
3Q5GT/G	BM PWR	FIL	1.4 or 2.8	.1 .05	7AP-OGT7	9H	PARALLEL FIL SERIES FIL	PR AMP CL A	90 90	-4.5 -4.5	90 90	9.5 8.0	1.3 1.0		.075MEG .08 MEG	2200 2000	.270 .230	8000 8000		3Q5GT/G
3S4	PENTODE	FIL	1.4 or 2.8	.1 .05	7BA-MB7	5B	PARALLEL FIL SERIES FIL	POWER AMP CLASS A	90 90	-7 -7	67.5 67.5	7.4 6.1	1.4 1.1		.1 MEG .1 MEG	1550 1425	.270 .235	8000 8000		3S4
4A6G	TWIN TRIODE	FIL	2.0 or 4.0	.12 .06	8L-OS8	12E		CL A 1 SECT CL B 2 SECT	90 90	-1.5 -1.5		1.1 1.1	20 MAX SIG PLATE CUR		26600 10.8ma	.750 1.0				4A6G
5R4GY	TWIN DIODE	FIL	5.0	2.0	5T-OM5	16A		FULL WAVE RECTIFIER	1000 RMS MAX COND 950 RMS MAX CHOKE IN 150 DC MAX											5R4GY
5T4	TWIN DIODE	FIL	5.0	2.0	5T-OW5	10C		FULL WAVE RECTIFIER	450 RMS MAX COND IN 225 DC MAX 550 RMS MAX CHOKE IN 225 DC MAX											5T4
5U4G	TWIN DIODE	FIL	5.0	3.0	5T-OM8	16A		FULL WAVE RECTIFIER	450 RMS MAX COND IN 225 DC MAX 550 RMS MAX CHOKE IN 225 DC MAX											5U4G
5V4G	TWIN DIODE	HTR	5.0	2.0	5L-OM5	14C		FULL WAVE RECTIFIER	375 RMS MAX COND IN 175 DC MAX 500 RMS MAX CHOKE IN 175 DC MAX											5V4G
5W4 5W4GT/G	TWIN DIODE	FIL	5.0	1.5	5T-OW5 5T-OGT5	8H 9HB		FULL WAVE RECTIFIER	350 RMS MAX COND IN 100 DC MAX 500 RMS MAX CHOKE IN 100 DC MAX											5W4 5W4GT/G
5X3	TWIN DI	FIL	5.0	2.0	4C-SM4	14D		F W RECT	1275 RMS MAX COND IN 30 DC MAX											5X3
5X4G	TWIN DI	FIL	5.0	3.0	5Q-OM8	16A		F W RECT	450 RMS MAX COND IN 225 DC MAX 550 RMS MAX CHOKE IN 225 DC MAX											5X4G

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TYPE	DESIGN	TYPE	CATHODE HTR OR FIL	BASING DATA	MAX SIZE VIEW	CAPACITIES C-P IN OUT mmfd mmfd mmfd	USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
5Y3CT/G 5Y4G	TWIN DIODE	FIL	5.0	5T-OM5 5Q-OM8	9HB 14C		FULL WAVE RECTIFIER	350 RMS MAX 500 RMS MAX	COND IN 125 DC MAX CHOKE IN 125 DC MAX				DC MAX	TUBE DROP	60v AT 125ma		DC		5Y3CT/G 5Y4G
5Z3	TWIN DI	FIL	5.0	4C-SM4	16B		F W RECT	450 RMS MAX 550 RMS MAX	COND IN 225 DC MAX CHOKE IN 225 DC MAX				DC MAX	TUBE DROP	58v AT 225ma		DC		5Z3
5Z4 5Z4CT/G	TWIN DIODE	HTR	5.0	5L-OW5 5L-OGT5	8H 9H		FULL WAVE RECTIFIER	350 RMS MAX 500 RMS MAX	COND IN 125 DC MAX CHOKE IN 125 DC MAX				DC MAX	TUBE DROP	20v AT 125ma		DC		5Z4 5Z4CT/G
6A3	TRIODE	FIL	6.3	4D-SM4	16B	16 7 5	PR AMP CL A PUSH-PULL CL AB 2 TUBE	250 325 325	-45 -68 SELF		60 80 80		4.2	800	5250	3.2 15 10	2500 3000 5000		6A3
6A4/LA	PENTODE	FIL	6.3	5B-SM5	14D		PR AMP CL A PUSH-PULL CL AB 2 TUBE	180 250	-12 SELF	180 230	22 32	3.9 700	100 OHM BIAS RES	45500	2200	1.4 4.2	8000 16000		6A4/LA
6A5G	TRIODE	HTR	6.3	6T-OM8	16A	16 7	PR AMP CL A PUSH-PULL CL AB 2 TUBE	250 325 325	-45 -68 -SELF		60 80 80		4.2	800	5250	3.75 15 10	2500 3000 5000		6A5G
6A6	TWIN TRIODE	HTR	6.3	7B-SM7	14D	(SEE TYPE 6N7G ALSO)	AMP CL A TRI IN PAR'L	294 250	-6 -5		7 6		35 35	11000 11300	3200 3100				6A6
6A7 6A7S 6A8 6A8G 6A8GT	HEPTODE	HTR	6.3	7C-SS7 7C-SS7 8A-OW8 8A-OS8 8A-OW8	12H 8F 12F 9F	.3* 8.5 9.0 .03 12.5 12.5 .26* 9.5* 12* .26* 9.5* 12*	OSC SECT MIXER	250S 100 250 100	.05MEG .05MEG -3 -1.5		4.0 2.0 3.5 1.1	2.7 1.3		.36MEG .6 MEG	550C 360C		-35 -20		6A7 6A7S 6A8 6A8G 6A8GT
6AB5/6N5	ELEC RAY	HTR	6.3	6R-SS6	9R		TUNING IND	135 THRU .25 MEG, TARGET 135v, GRID 0v FOR 90°, -10.0v FOR 0°											6AB5/6N5
6AB6G	DUO TRIODE	HTR	6.3	7AU-OS7	12K	DRIVER TRIODE OUTPUT TRIODE	DIR C/P'D AMP	250 250	0 +		5 34			4000	1800	3.5	8000		6AB6G
6AB7/1853	PENTODE	HTR	6.3	8N-OW8	8E	.015 8 5	HIGH FREQ AMPLIFIER	300 300	-3 -3	200 300	12.5 THRU .03 MEG	3.2 (OTHER VALUES SAME AS ABOVE)		.7 MEG	5000		-15 -22.5		6AB7/1853
6AC5G	TRIODE	HTR	6.3	6Q-OS6	12E	ONE 76 DRIVER TWO 76 DRIVERS	DIR C/P'D AMP PUSH-PULL CL B 2 TUBE	250 250 250	SUPPLIED BY DRIVERS	32 64 0	125 THRU .03 MEG	125 (OTHER VALUES SAME AS ABOVE)		36700	3400	3.7 9.5 8	7000 10000 10000		6AC5G
6AC5CT	TRIODE	HTR	6.3	6Q-OGT6	9H		DIR C/P'D AMP	180 180	0 +		7 45			18000	3000	3.8	4000		6AC5CT
6AC6GT	DUO TRIODE	HTR	6.3	7AU-OGT7	9H	DRIVER TRIODE OUTPUT TRIODE	DIR C/P'D AMP	180 180	0 +		7 45			18000	3000	3.8	4000		6AC6GT
6AC7/1852	PENTODE	HTR	6.3	8N-OW8	8E	.015 11 5	HIGH FREQ AMPLIFIER	300 300	SELF SELF	150 300	10 THRU .06 MEG	2.5 (OTHER VALUES SAME AS ABOVE)		1.0MEG	9000	160 OHM-BIAS RES		6AC7/1852	
6AD5G	TRIODE	HTR	6.3	6Q-OS6	12E	3.3 4.1 3.9	AMP CL A	250	-2		0.9		100	66000	1500				6AD5G
6AD6G	TWIN ELEC RAY	HTR	6.3	7AG-OW7	9C		TUNING INDICATOR	TARGET 150v TARGET 100v											6AD6G
6AD7G	TRIODE PENTODE	HTR	6.3	8AY-OM8	14C	TRIODE SEC PENTODE SEC	AMP CL A PR AMP CL A	250 250	-25 -16.5	250 250	3.7 34	6 6.5		19000 80000	325 2500	3.2	7000		6AD7G
6AE5CT/G	TRIODE	HTR	6.3	6Q-OGT6	9H		AMP CL A	95	-15		7		4.2	3500	1200				6AE5CT/G
6AE6G	DUO TRIODE	HTR	6.3	7AH-OS7	12E		CONTROL FOR 6AD6G-6AF6G	250 250	-1.5 -1.5		6.5 4.5		25 33		1000 950	PLATE R PLATE L	-35 -9.5		6AE6G

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TYPE	DESIGN	CATHODE TYPE	HTR OR FIL VOLTS	BASING DATA	MAX SIZE VIEW	CAPACITIES G-P IN OUT mmfds mmfds mmfds	USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
6AF7CT	TWIN TRIODE	HTR	6.3	.5	7AX-OGT8 9H		DRIVER 1 SEC TRIODE	250	-13.5		5		14	9300	1500				6AE7CT
6AF5G	TRIODE	HTR	6.3	.3	6Q-OS6 12E		AMP CL A	180	-18		7		7.4	4900	1500				6AF5G
6AF6G	TWIN ELEC RAY	HTR	6.3	.15	7AG-OS7 9M		TUNING INDICATOR	TARGET 135v TARGET 100v											6AF6G
6AG5	PENTODE	HTR	6.3	0.3	7BD-MB7 5B	0.025 6.5	AMP CL A	250	-2	150	7	2		0.8MEG	5000			-8	6AG5
6AC7	PENTODE	HTR	6.3	.65	8Y-OW8 8H	.06* 13.0*	AMP CL A	300	-10.5	300	25	6.5		.1 MEG	7700		3500		6AC7
6AH5G	PWR AMP	HTR	6.3	0.9	6AP-OM8 16A		PR AMP CL A	350	-18	250	54	2.5		33000	5200	10.8	4200		6AH5G
6AH7CT	TWIN TRI	HTR	6.3	.3	8BE-OGT8 9D	2.2(1) 3.0(2)	CL A 1 SECT	250 100	-9 -3.6		12 3.7		16 16	6800 10300	2400 1550			-30 -8.5	6AH7CT
6AK5	PENTODE	HTR	6.3	0.175	7BD-MB7 5A	0.01 4.3	AMP CL A	180	-2	120	7.7	2.4		0.69MEG	5100			-12	6AK5
6AK6	PENTODE	HTR	6.3	0.15	7BK-MB7 5B	0.12 3.6	POWER AMPLIFIER	180 135	-9 -6	180 135	15 11.5	2.5 2.0	400 360	.19MEG .17MEG	2300 2100	1.1 0.6	10000 12000		6AK6
6AL6G	BEAM PWR AMP	HTR	6.3	.9	6AM-OM7 16C		POWER AMP CLASS A	250 250	-14 SELF	250 250	72 75	5 5.4	170	22500 OHM BIAS	6000 RES	6.5 6.5	2530 2500		6AL6G
6B4G	TRIODE	FIL	6.3	1.0	5S-OM8 16A	16 7	PR AMP CL A PUSH-PULL CL AB 2 TUBE	250 325	-45 -68 SELF		60 80 80		4.2	800	5250	3.2 15 10	2500 3000 5000		6B4G
6B5	DUO-TRI	HTR	6.3	.8	6AS-SM6 14D		DIR C'P'D AMP 2 TUBES CL A	325 325	0 +		9 51					See Type 6N6G Also 13.5	10000		6B5
6B6G	DUO-DI TRIODE	HTR	6.3	.3	7V-OS7 12F	1.3 2.7	AMPLIFIER CLASS A	250	-2		0.9		100	91000	1100				6B6G
6B7 6B7S	DUO-DI PENTODE	HTR	6.3	.3	7D-SS7 12H	.007* 3.5	AMPLIFIER CLASS A	250 100	-3 -3	125 100	9.0 5.8	2.3 1.7		.6 MEG .3 MEG	1125 950			-21 -17	6B7 6B7S
6B8 6B8G 6B8CT	DUO-DI PENTODE	HTR	6.3	.3	8E-OW8 12F 8E-OS8 9G 8EOW8	.005 .01* 0.005*	AMPLIFIER CLASS A	250 100	-3 -3	125 100	10 5.8	2.3 1.7		.6 MEG .3 MEG	1325 950			-21 -17	6B8 6B8G 6B8CT
6C4	TRIODE	HTR	6.3	0.15	6BG-MB7 5B	1.6 1.8	H-F POWER TRIODE	250 100	-8.5 0		10.5 11.8			7700 6250	2200 3100				6C4
6C5 6C5G 6C5CT/G	TRIODE	HTR	6.3	.3	6Q-OW6 12E 6Q-OS6 9E 6Q-OW6	2.0 2.2* 2.2*	AMPLIFIER CLASS A	250	-8		8		20	10000	2000				6C5 6C5G 6C5CT/G
6C6	PENTODE	HTR	6.3	.3	6F-SS6 12J	.007* 5.0	AMPLIFIER CLASS A	250 100	-3 -3	100 100	2.0 2.0	.5 .5		1.5MEG 1 MEG	1226 1185			-7 -7	6C6
6C7	DUO-DI TRIODE	HTR	6.3	.3	7G-SS7		AMP CL A	250	-9		5.5		20	16000	1250				6C7
6C8G	TWIN TR	HTR	6.3	.3	8G-OS8 12F		CL A 1 SECT	250	-4.5		3.2		36	22500	1600				6C8G
6D6	PENTODE	HTR	6.3	.3	6F-SS6 12J	.007* 4.7	AMP CL A	250 100	-3 -3	100 100	8.2 8.0	2.0 2.2		.8 MEG .25MEG	1600 1500			-50 -50	6D6

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TYPE	DESIGN	CATHODE HTR OR FIL VOLTS	BASING DATA	MAX SIZE VIEW	CAPACITIES			USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
					G-P mmfds	IN mmfds	OUT mmfds													
6D7	PENTODE	HTR	6.3	.3				AMP CL A	250 100	-3 -3	100 100	2.0 2.0	.5 .5		1.5MEG 1 MEG	1226 1185			-7 -7	6D7
6D8G	HEPTODE	HTR	6.3	.15	12F	.2*	8.0* 11*	OSC SECT MIXER	250S 250	.05MEG -3	100	4.3 3.5	2.6		GRID #2 RES .4 MEG	.02 MEG			-35	6D8G
6E5	ELEC RAY	HTR	6.3	.3	9R			TUNING IND	250 THRU 1 MEG	1 MEG, TARGET 250v, GRID 0v FOR 90°, -8v FOR 0°									6E5	
6E6	TWIN TRI	HTR	6.3	.6	14D		PUSH-PULL	CL A 1 SECT CL A 2 SECT	250 250	-27.5 -27.5		18 36	6		3500	1700	1.6	14000		6E6
6E7	PENTODE	HTR	6.3	.3				AMP CL A	250 100	-3 -3	100 100	8.2 8.0	2.0 2.2		.8 MEG .25MEG	1600 1500			-50 -50	6E7
6F5 6F5G 6F5CT	TRIODE	HTR	6.3	.3	8F 12F 9J	2.0 2.0 2.0*	6.0 2.5 6.0*	12 3.5 12*	AMPLIFIER CLASS A	250 100	-2 -1	0.9 0.4		100 100	66000 85000	1500 1150				6F5 6F5G 6F5CT
6F6 6F6G	PENTODE	HTR	6.3	.7	8H 14C		PENTODE CONNECTION	PR AMP CL A PUSH-PULL CL AB 2 TUBE	285 250 375 315	-20 -16.5 -26 -24	285 250 250 285	38 34 34 62	7 6.5 5 12	(SEE TYPE 2A5 ALSO)	78000 80000	2550 2500	4.8 3.2 18.5 11	7000 7000 10000 10000		6F6 6F6G
6F7 6F7S	TRIODE PENTODE	HTR	6.3	.3	12H	2.0 .008*	2.5 3.2	3.0 12.5	TRI CL A PENT CL A	100 250	-3 -3	3.5 6.5	1.5	8 900	16000 .85MEG	500 1100	(SEE 6P7G ALSO)	-35	6F7 6F7S	
6F8G	TWIN TR	HTR	6.3	.6	12F	4.0L 3.6R	3.2L 3.0R	3.2L 3.8R	AMP CL A ONE SECT	250 90	-8 0	9.0 10.0		20 20	7700 6700	2600 3000				6F8G
6G6G	PENTODE	HTR	6.3	.15	12E			POWER AMP CLASS A	180 135	-9 -6	180 135	15 11.5	2.5 2.0	400 360	.18MEG .17MEG	2300 2100	1.1 0.6	10000 12000		6G6G
6H4CT	DIODE	HTR	6.3	.15	9H			DETECTOR	100 MAX	4 MAX					1000 AT .25ma				6H4CT	
6H6 6H6G 6H6CT	TWIN DIODE	HTR	6.3	.3	8C 12E 9E	.1PP .1PP .1PP		DETECTOR	150 MAX	4 MAX EACH DIODE										6H6 6H6G 6H6CT
6J5 6J5CT/G	TRIODE	HTR	6.3	.3	8E 9E	3.4 3.8*	3.4 4.2*	3.6 5.0*	AMPLIFIER CLASS A	250 90	-8 0	9.0 10.0	20 20		7700 6700	2600 3000				6J5 6J5CT/G
6J6	TWIN TRIODE	HTR	6.3	0.45	5B	1.6	2.2	0.4	OSCILLATOR	100	-1	8.5	38		6000	5300				6J6
6J7 6J7G 6J7CT	PENTODE	HTR	6.3	.3	8F 12F 9F	.005 .005* .005*	7 4.6* 4.6*	12 12* 12*	AMP CL A PENT CONN TRI CONN	250 100 250	-3 -3 -8	2.0 2.0 6.5	0.5 0.5	20	1.5MEG 1.0MEG	1225 1185 1900			-7 -7	6J7 6J7G 6J7CT
6J8G	TRIODE HEPTODE	HTR	6.3	.3	12F	.01*	4.6*	10.5*	OSC-TRIODE MIXER HEPT	250S 250	.05MEG -3	5.0 1.2	2.9	TRIODE PLATE RESISTOR	.02 MEG			-20		6J8G
6K5G	TRIODE	HTR	6.3	.3	12F	2.0	2.4	3.6	AMP CL A	250	-3	1.1	70		50000	1400				6K5G
6K6CT/G	PENTODE	HTR	6.3	.4	9H			POWER AMP CLASS A	315 250	-21 -18	250 250	25.5 32	4.0 5.5		75000 68000	2100 2300	4.5 3.4	9000 7600		6K6CT/G
6K7 6K7G 6K7CT	PENTODE	HTR	6.3	.3	8F 12F 9F	.005 .007* .005*	7 5* 4.6*	12 12* 12*	AMPLIFIER CLASS A	250 250 100	-3 -3 -1	125 100 100	10.5 7.0 9.5	2.6 1.7 2.7	.6 MEG .8 MEG .15MEG	1650 1450 1650			-52.5 -42.5 -38.5	6K7 6K7G 6K7CT

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TYPE	DESIGN	CATHODE HTR OR FIL VOLTS	BASING DATA	MAX SIZE VIEW	CAPACITIES			USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE	
6K8 6K8G 6K8GT	TRIODE HEXODE	6.3	.3 8K-OW8 8K-OS8 8K-OW8	8GA 12F 9GA	G-P	IN	OUT	OSC-TRIODE MIXER HEX	100	.05MEG	100	3.8	6.0	17	.6 MEG .4 MEG	3000	(TRIODE GRID 0v)	—30 —30 —30	6K8 6K8G 6K8GT		
					mmfd	mmfd	mmfd		3500												
					mmfd	mmfd	mmfd		350C												
6L5G	TRIODE	6.3	.15 6Q-OS6	12E	2.7*	3*	5*	AMP CL A	250	—9	8	8	6.2	6L6 6L6G	33000 22500 23500	1900	4200 6.5 5000 26.5 47 3800	—20	6L5G		
6L6 6L6G	BEAM PWR AMP	6.3	.9 7AC-OW7 7AC-OM8	10C 16A	2 TUBES 2 TUBES 2 TUBES	POWER AMP CLASS A PP CL A PP CL AB PP CL AB 2	350	—18	250	54	2.5	10.8	5200								
							250	—14	250	72	5.0	6000									
6L7 6L7G	HEPTODE	6.3	.3 7T-OW7 7T-OS7	8F 12F	.001	7.5	11	AMP CL A	250	—3	100	5.3	6.5	670	.6 MEG 1 MEG	1100	G3 AT G3 AT	—3v —15v	6L7 6L7G		
					.005*	6*	10*	MIXER	250	—6	150	3.3	9.2			350C					
					2.5	3.7	4.3	CL A TRIODE CL A PENTODE	100	—1	100	0.5	2.7			1100					
6M8GT	TRIODE PENTODE	6.3	0.6 8AU-OGT8	9L	0.015	5.2	1.0	CL A PENTODE	100	—3	100	8.5	2.7	6M8GT	91000 0.2MEG	1900	—35	6M8GT			
6N6G	DUO TRI	6.3	.8 7AU-OM7	14C	DRIVER TRIODE OUTPUT TRIODE			300	0	8	45	MAX SIG PLATE CUR—70ma	24000			2400 4			(SEE TYPE 6B5 ALSO)	8000	
					300	0	35														
6N7 6N7G	TWIN TRIODE	6.3	.8 8B-OW8 8B-OM8	8H 14C	(SEE TYPE 6A6 ALSO)	POWER AMP CL B 2 SECT			300	0	35	35	MAX SIG PLATE CUR—70ma	6N7 6N7G	9500 12000	1450	10	8000			
6P5G 6P5GT	TRIODE	6.3	.3 6Q-OS6 6Q-OGT6	12E 9H	2.6*	3.4*	5.5*	AMPLIFIER CLASS A	250	—13.5	5	2.5	13.8			13.8			1150	6P5G 6P5GT	
					20*	3.5*	3.0*	OSC-TRIODE MIXER PENT	100	—3	100	2.4	0.6			2 MEG			300C		(SEE TYPE 6F7 ALSO)
6P7G	TRIODE- PENTODE	6.3	.3 7U-OS8	12F	.008*	3.5*	12*	OSC-TRIODE MIXER PENT	250	—3	100	2.8	0.6	70 70	58000 58000	1200	1200	—42.5	6P7G		
6Q7 6Q7G 6Q7GT	DUO- DIODE TRIODE	6.3	.3 7V-OW7 7V-OS7 7V-OW7	8F 12F 9F	1.5	5.5	5.0	AMPLIFIER CLASS A	250	—3	1.0	0.8	70			70				1200	
					1.3	2.7	4.5	CLASS A	100	—1.0											
6R6G	PENTODE	6.3	0.3 6AW-OS6	12F	0.007	4.5	11	AMPLIFIER TELEVISION CIRCUITS	250	—3	100	7.0	1.7	1160	0.8MEG	1450			6R6G		
6R7 6R7G 6R7GT	DUO DI TRIODE	6.3	.3 7V-OW7 7V-OS7 7V-OGT7	8F 12F 9J	2.5	5.5	4.0	AMPLIFIER CLASS A	250	—9		9.5		16	8500	1900	.28	10000	6R7 6R7G 6R7GT		
					3.5	2.5	4.5	CLASS A													
					.005	6.5	10.5	AMPLIFIER CLASS A	250	—3	100	8.5	2.0	1 MEG	1750	6S7 6S7G					
6S7 6S7G	PENTODE	6.3	.15 7R-OW7 7R-OS7	8GA 12F	.008*	4.4*	8.0*	CLASS A	135	—3	67.5	3.7	0.9	1 MEG	1250		—38.5 —25	6S7 6S7G			
6SA7 6SA7GT/G	HEPTODE	6.3	.3 8R-OW8 8AD-OW8	8E 9E	.13	9.5	12	OSC SECT MIXER	250	—2	100	3.5	8.5	OCS GRID CUR —.5ma	1.0MEG				450C	—35	6SA7 6SA7GT/G
					.20	11.0	12	CL A 1 SECT	250	—2		2	70	53000	1325	6SC7 6SC7GT					
6SC7 6SC7GT	TWIN TRI	6.3	.3 8S-OW8 8S-OW8	8E 9H				CL A 1 SECT	250	—2				70	53000		1325		—11 —11	6SD7GT	
6SD7GT	PENTODE	6.3	.3 8N-OW8	9E	.0035	9.0	7.5	AMP CL A	250	—2	100	6.0	1.9	1.0MEG	.25MEG		3600	3600 3350			—5
					AMP CL A	250	—2	100	5.7	2.0	1.0MEG	3100	6SF5 6SF5GT								
6SE7GT	PENTODE	6.3	0.3 8N-OW8	9E	0.005	8.0	7.5	AMP CL A	250	—1.5	100	4.5		1.5		1.0MEG	3100			—35 —35	
6SF5 6SF5GT	TRIODE	6.3	.3 6AB-OW6 6AB-OGT6	8E 9H	2.6	4.2	3.8	AMPLIFIER CLASS A	250	—2		0.9			66000	1500	1500 1150	7 MEG .2 MEG	2050 1975		
					2.6*	4.2*	3.8*	CLASS A	100	—1		0.4	100	12.4	3.3	3.4					
6SF7	DIODE PENTODE	6.3	.3 7AZ-OW8	8E				AMP CL A	250	—1	100	12.0	3.4		.7 MEG .2 MEG	2050 1975					—35 —35

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TYPE	DESIGN	TYPE	CATHODE HTR OR FIL VOLTS	BASING DATA	MAX SIZE VIEW	CAPACITIES			USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
					G-P mmfd	IN mmfd	OUT mmfd														
6SC7	PENTODE	HTR	6.3	.3	8E			AMP CL A	250 100	-1 -1	125 100	11.8 8.2	4.4 3.2			.9 MEG .25MEG	4700 4100			-14 -11.5	6SC7
6SH7CT	PENTODE	HTR	6.3	0.3	8BK-OW8	0.003	8.5	7.0	AMPLIFIER CLASS A	250 100	-1 -1	150 100	10.8 5.3	4.1 2.1		0.9MEG 0.35MEG	4900 4000			-5.5 -4	6SH7CT
6SJ7 6SJ7CT	PENTODE	HTR	6.3	.3	8N-OW8 8N-OW8	.005	6.0	7.0	AMPLIFIER CLASS A	250 100	-3 -3	100 100	3.0 2.9	0.8 0.9	2500 1100	1.5MEG 0.7MEG	1650 1575			-9 -9	6SJ7 6SJ7CT
6SK7 6SK7CT/G	PENTODE	HTR	6.3	.3	8N-OW8 8N-OW8	.003 .005*	6.0 6.5*	7.0 7.5*	AMPLIFIER CLASS A	250 100	-3 -1	100 100	9.2 13.0	2.6 4.0	2000 2350	0.8MEG .12MEG	2000 2350			-35 -35	6SK7 6SK7CT/G
6SL7CT	TWIN TR	HTR	6.3	0.3	8BD-OGT8				CL A 1 SECT	250	-2		2.3		70	44000	1600				6SL7CT
6SN7CT	TWIN TR	HTR	6.3	.60	8BD-OGT8	4L 4R	3.2L 3.8R	3.4L 2.6R	CL A 1 SECT	250 90	-8 0		9 10		20 20	7700 6700	2600 3000				6SN7CT
6SQ7 6SQ7CT/G	DUO-DI TRIODE	HTR	6.3	.3	8Q-OW8 8Q-OW8	1.8	4.2	3.4	AMPLIFIER CLASS A	250 100	-2 -1		0.9 0.4		100 100	91000 110000	1100 900				6SQ7 6SQ7CT/G
6SR7 6SR7CT	DUO-DI TRIODE	HTR	6.3	.3	8Q-OW8 8Q-OGT8	2.0 2.3*	3.4 3.5*	2.8 3.8*	AMP CL A	250	-9		9.5		16	8500	1900				6SR7 6SR7CT
6SS7	PENTODE	HTR	6.3	0.15	8N-OW8	0.004	5.5	7.0	AMPLIFIER CLASS A	250 100	-3 -1	100 100	9.0 12.2	2.0 3.1		1.0MEG 0.12MEG	1850 1930			-35 -35	6SS7
6ST7	DIO-DI TRIODE	HTR	6.3	0.15	8Q-OW8	1.5	2.8	3.0	AMP CL A	250	-9		9.5		16	8500	1900				6ST7
6T7G	DUO-DI TRIODE	HTR	6.3	.15	7V-OS7	1.3	2.7	4.5	AMPLIFIER CLASS A	250 135	-3 -1.5		1.2 0.9		65 65	62000 65000	1050 1000				6T7G
6U5/6G5	ELEC RAY	HTR	6.3	.3	6R-SS6				TUNING IND	250 THRU 100	1 MEG THRU .5 MEG	TARGET 250v, TARGET 100v,	GRID 0v FOR 90°, GRID 0v FOR 90°, -22v FOR 0°, -8v FOR 0°								6U5/6G5
6U6CT	BEAM PWR AMP	HTR	6.3	.75	7AC-OGT7				POWER AMP CLASS A	200 110	-14 -10.5	135 110	55 44	3 4		20000 10000	6200 5600	5.5 2.0	3000 2000		6U6CT
6U7G	PENTODE	HTR	6.3	.3	7R-OS7	.007*	5*	9*	AMP CL A	250 100	-3 -3	100 100	8.2 8.0	2.0 2.2		.8 MEG .25MEG	1600 1500			-50 -50	6U7G
6V6 6V6CT/G	BEAM POWER AMP	HTR	6.3	.45	7AC-OW7 7AC-OW7			2 TUBES	AMPLIFIER CLASS A PP CL AB	315 250 250 285	-13 -12.5 -15 -19	225 250 250 285	34 45 70 70	2.2 4.5 5.0 4.0		77000 52000 60000 65000	3750 4100 3750 3600	5.5 4.5 10 14	8500 5000 10000 8000		6V6 6V6CT/G
6V7G	DUO-DI TRIODE	HTR	6.3	.3	7V-OS7	1.7	2.0	3.5	AMPLIFIER CLASS A	250 180	-20 -13.5		8 6		8.3 8.3	7500 8500	1100 975	.35 .16	20000 20000		6V7G
6W5G	TWIN DI	HTR	6.3	.9	6S-OS6				FULL WAVE RECTIFIER	325 450	RMS MAX COND RMS MAX	IN 90 DC MAX CHOKE IN 90 DC MAX				TUBE DROP 24v AT 90ma DC					6W5G
6W6CT	TETRODE PWR AMP	HTR	6.3	1.25	7AC-OGT7				AMPLIFIER CLASS A	135	-9.5	135	58	2.8	215	24000	9000	3.3	2000		6W6CT
6W7G	PENTODE	HTR	6.3	.15	7R-OS7	.007*	5.0*	8.5*	AMP CL A	250	-3	100	2.0	0.5		1.5MEG	1225			-7	6W7G
6X5 6X5CT/G	TWIN DIODE	HTR	6.3	.6	6S-OW6 6S-OGT6				FULL WAVE RECTIFIER	325 450	RMS MAX COND RMS MAX	IN 70 DC MAX CHOKE IN 70 DC MAX				TUBE DROP 22v AT 70ma DC					6X5 6X5CT/G

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TYPE	DESIGN	CATHODE TYPE	HTR OR FIL VOLTS	AMPS	BASING DATA	MAX SIZE VIEW	CAPACITIES G-P IN OUT mmfd mmfd mmfd	USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
6Y5	TWIN DIODE	HTR	6.3	.8	6J-SS6	12E	(MERCURY VAPOR)	FULL WAVE RECTIFIER	325 RMS MAX 450 RMS MAX	COND IN 60 DC MAX CHOKE IN 60 DC MAX					TUBE DROP 20v AT 60ma DC					6Y5
6Y6G	BEAM PWR AMP	HTR	6.3	1.25	7AC-OM7	14C		POWER AMP CLASS A	200 135	-14 -13.5	135 135	61 58	2.2 3.5		18300 9300	7100 7000	6.0 3.6	2600 2000		6Y6G
6Y7G	TWIN TRIODE	HTR	6.3	.6	8B-OS8	12E		CL B AMP 2 SECTIONS	250 180	0 0		10.6 NO SIG 7.6 NO SIG				8 5.5	14000 7000			6Y7G
6Z5	TWIN DIODE	HTR	12.6 or 6.3	.4 .8	6K-SS6	12B		FULL WAVE RECTIFIER	325 RMS MAX 450 RMS MAX	COND IN 60 DC MAX CHOKE IN 60 DC MAX					TUBE DROP 20v AT 60ma DC					6Z5
6Z7G	TWIN TRIODE	HTR	6.3	.3	8B-OS8	12E		CL B AMP 2 SECTIONS	180 135	0 0		8.4 NO SIG 6.0 NO SIG				4.2 2.5	12000 9000			6Z7G
6ZY5G	TWIN DI	HTR	6.3	.3	6S-OS6	12E		FULL WAVE RECTIFIER	325 RMS MAX 450 RMS MAX	COND IN 40 DC MAX CHOKE IN 40 DC MAX					TUBE DROP 18v AT 40ma DC					6ZY5G
7A4	TRIODE	HTR	6.3	.3	5AC-L8	9A	4	AMPLIFIER CLASS A	250 90	-8 0		9 10	20 20		7700 6700	2600 3000				7A4
7A5	PENTODE	HTR	6.3	.75	6AA-L8	9B		POWER AMP CLASS A	125 110	-9 -7.5	125 110	44.0 40.0	3.3 3.0		17000 14000	6000 5800	2.2 1.5	2700 2500		7A5
7A6	DUO-DI	HTR	6.3	.15	7AJ-L8	9A	.05PP	DETECTOR	150 RMS MAX	8 DC MAX					TUBE DROP 11v AT 16ma DC					7A6
7A7	PENTODE	HTR	6.3	.3	8V-L8	9A	.005	AMP CL A	250 100	-3 -1	100 100	9.2 13.0	2.6 4.0	1600 1600	.8 MEG .12MEG	2000 2350			-35 -35	7A7
7A8	OCTODE	HTR	6.3	.15	8U-L8	9A	.15	OSC SECT MIXER	250S 250	.05MEG -3	100 100	4.2 3.0	3.2		GRID #2 RES .02 MEG .7 MEG 550C				-30	7A8
7B4	TRIODE	HTR	6.3	.3	5AC-L8	9A	1.6*	AMP CL A	100 250	-1 -2		0.5 0.9		100 100	85000 66000	1175 1500				7B4
7B5	PENTODE	HTR	6.3	.4	6AE-L8	9B		POWER AMP CLASS A	315 100	-24 -7	250 100	25.5 9.0	4.0 1.6		75000 .1 MEG	2100 1500	4.5 .35	9000 12000		7B5
7B6	DUO-DI TRIODE	HTR	6.3	.3	8W-L8	9A	1.5	AMPLIFIER CLASS A	250 100	-2 -1		0.9 0.4		100 100	91000 110000	1100 900				7B6
7B7	PENTODE	HTR	6.3	.15	8V-L8	9A	.007	AMP CL A	250 100	-3 -3	100 100	8.5 8.2	1.7 1.8		.7 MEG .3 MEG	1700 1675			-40 -40	7B7
7B8	HEPTODE	HTR	6.3	.3	8X-L8	9A		OSC SECT MIXER	250S 100 250 100	.05MEG .05MEG -3 -1.5	4.0 2.0 100 50			GRID #2 RES .02 MEG .36MEG .6 MEG 360C				-35 -20	7B8	
7C4/1203A	DIODE	HTR	6.3	0.150	4AH-L8	9A	0.8	DETECTOR	117 MAX	5 MAX										7C4/1203A
7C5	BEAM PWR AMP	HTR	6.3	.45	6AA-L8	9B		AMPLIFIER CLASS A PP CL AB	315 250 250 285	-13 -12.5 -15 -19	225 250 250 285	34 45 70 70	2.2 4.5 5.0 4.0		77000 52000 60000 65000	3750 4100 3750 3600	5.5 4.5 10 14	8500 5000 10000 8000		7C5
7C6	DUO-DI TRIODE	HTR	6.3	.15	8W-L8	9A	1.4	AMPLIFIER CLASS A	250 100	-1 0		1.3 1.0		100 85	.1 MEG .1 MEG	1000 850				7C6

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TYPE	DESIGN	CATHODE HTR OR FIL VOLTS AMPS	BASING DATA	MAX SIZE VIEW	CAPACITIES			USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
					G-P mmfds	IN mmfds	OUT mmfds													
7C7	PENTODE	HTR	6.3	.15	8V-L8	9A	.007*	5.5*	6.5*	AMPLIFIER CLASS A	250	-3	100	2.0	0.5	2 MEG	1300		-7	7C7
7E5/1201	TRIODE	HTR	6.3	.150	8BN-L8	9A	1.5	3.6	2.8	AMPLIFIER	180	-3.0		5.5	36	12000	3000			7E5/1201
7E6	DUO-DI TRIODE	HTR	6.3	.3	8W-L8	9A	1.5	3.0	3.4	AMP CL A	250	-9		9.5	16	8500	1900			7E6
7E7	DUO-DI PENTODE	HTR	6.3	.3	8AE-L8	9A	.005*	4.6*	4.6*	AMPLIFIER CLASS A	250 100	-3 -1	100 100	7.5 10.0	1.6 2.7	.7 MEG .15MEG	1300 1600		-42.5 -36.0	7E7
7F7	TWIN TR	HTR	6.3	.3	8AC-L8	9A				CL A 1 SECT	250	-2		2.3	70	44000	1600			7F7
7G7/1232	PENTODE	HTR	6.3	.45	8V-L8	9A	.007*	9.0*	7.0*	AMP CL A	250	-2	100	6.0	2.0	.8 MEG	4500		-6	7G7/1232
7H7	PENTODE	HTR	6.3	.3	8V-L8	9A	.007*	8.0*	7.0*	AMP CL A	250 100	-2.5 -1	150 100	9.5 8.2	3.5 3.3	.8 MEG .25MEG	3800 3800		-19 -12	7H7
7J7	TRI HEX	HTR	6.3	.3	8AR-L8	9A	.01*	5.5*	7.5*	OSC-TRIODE MIXER HEX	250S 250	.05MEG -3	100	5.4 1.3	2.9	TRIODE PLATE RESISTOR .02 MEG 1.5MEG 300C			-20	7J7
7K7	DUO- DIODE	HTR	6.3	.3	8BF-L8	9A				AMPLIFIER CLASS A	250	-2		2.3	70	44000	1600			7K7
7L7	PENTODE	HTR	6.3	.3	8V-L8	9A	.01*	8.0*	6.5*	AMP CL A	250 100	-1.5 -1	100 100	4.5 5.5	1.5 2.4	1 MEG .1 MEG	3100 3000		-5 -5	7L7
7N7	TWIN TRIODE	HTR	6.3	.3	8AC-L8	9B	3.0L* 3.0R*	3.4L* 2.9R*	2.0L* 2.4R*	CL A 1 SECT	250 90	-8 0		9 10	20 20	7700 6700	2600 3000			7N7
7Q7	HEPTODE	HTR	6.3	.3	8AL-L8	9A	.2*	9.0*	9.0*	OSC SECT MIXER	250	-2	100	3.5	8.5	OSC GRID CUR —.5ma 1.0MEG 550C			-35	7Q7
7R7	DUO-DI PENTODE	HTR	6.3	.3	8AE-L8	9A	.004	5.6	5.3	AMP CL A	250 100	-1 -1	100 100	5.7 5.5	1.7 2.0	1.0MEG .35MEG	3200 3000		-20 -16	7R7
7S7	TRI HEX	HTR	6.3	0.30	8AR-L8	9A	0.04	5.5	9.0	OSC-TRIODE MIXER HEX	250S 250	.05MEG -2	100	5.0 1.7	2.2	TRIODE 2 MEG	600C	PLATE RESISTOR .02 MEG -21		7S7
7T7	PENTODE	HTR	6.3	0.3	8V-L8	9A	0.005	7.5	5.5	AMP CL A	250 100	-1 -1	150 100	10.8 5.3	4.1 2.1	0.9MEG 0.3MEG	4900 4000		-5.5 -4.0	7T7
7V7	PENTODE	HTR	6.3	0.45	8V-L8	9A	0.004	9.5	6.5	HIGH FREQ AMPLIFIER	300	-2	150	9.6	3.9	.3 MEG	5800		-6	7V7
7W7	PENTODE	HTR	6.3	0.45	8BJ-L8	9A	0.0025	9.5	7.0	HIGH FREQ AMPLIFIER	300 300	-2 -2	150 300	10.0 THRU .04 MEG	3.9	.3 MEG	5800		-6 -14	7W7
7Y4	TWIN DI	HTR	6.3	.5	5AB-L8	9A				F W RECT	325 RMS MAX COND 450 RMS MAX CHOKE IN 60 DC MAX					TUBE DROP 20v AT 60ma DC				7Y4
7Z4	TWIN DI	HTR	6.3	0.90	5AB-L8	9B				F W RECT	325 RMS MAX COND 450 RMS MAX CHOKE IN 100 DC MAX					TUBE DROP 40v AT 60ma DC				7Z4
10	TRIODE	FIL	7.5	1.25	4D-SM4	16B	7	4	3	POWER AMP CLASS A	425 350	-39 -22.0	18 10	8 8	8	5000 6000	1600 1330	1.6 0.4	10200 13000	10
12A	TRIODE	FIL	5.0	.25	4D-SM4B	14D	7.5	4.0	3.0	AMPLIFIER CLASS A	180 135	-13.5 -9	7.7 6.2	8.5 8.5	8.5	4700 5100	1800 1650	.285 130	10650 9000	12A

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TYPE	DESIGN	CATHODE		HTR OR FIL VOLTS	AMP	BASING DATA	MAX SIZE VIEW	CAPACITIES			USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
		G-P mmfds	IN mmfds					OUT mmfds															
12A5	PENTODE	HTR	12.6	.3	7FSS7	12B				POWER AMP CLASS A	180 100	-25 -15	180 100	45 17	8 3			35000 50000	2400 1700	3.4 .08	3300 4500		12A5
12A6GT	BEAM PWR AMP	HTR	12.6	0.15	7AC-OGT7	9H	0.6	9.0	9.0	AMPLIFIER CLASS A	250	-12.5	250	30	3.5			3000	3.0	7500		12A6GT	
12A7	DIODE PENTODE	HTR	12.6	.3	7KSS7	12H				H W RECT AMP CL A	125 RMS MAX 135	-13.5	135	9	2.5	100	TUBE DROP 15v AT 60ma DC .1 MEG 975 .55 13500					12A7	
12A8GT	HEPTODE	HTR	12.6	.15	8A-OW8	9F	2.6*	9.5*	12*	OSC SECT MIXER	250S 100 250 100	.05MEG .05MEG -3 -1.5	100 50	4.0 2.0 3.5 1.1	2.7 1.3		GRID #2 RES .02 MEG .36MEG 550C .6 MEG 360C				-35 -20	12A8GT	
12AH7GT	TWIN TR	HTR	12.6	.150	8BE-OGT8	9D	3.0L 2.2R	2.9L 3.2R	2.6L 3.0R	CL A 1 SECT	250 100	-9 -3.6		12 3.7		16 16	6600 10300	2400 1550			-30.0 -8.5	12AH7GT	
12B8GT	TRIODE PENTODE	HTR	12.6	.3	8T-OGT8	9L	2.3 0.15	5.0 5.2	6.3 9.6	AMP TRIODE CLASS A AMP PENT CLASS A	100 90 100 90	-1 0 -3 -3	100 100 90	0.6 2.8 8 7		110 90 360 360	73000 37000 .17MEG 2100 .20MEG 1800	1500 2400 2100 1800			-2.5 -2.5 -42.5	12B8GT	
12C8	DUO-DI PENTODE	HTR	12.6	.15	8E-OW7	8F	.005	6	9	AMPLIFIER CLASS A	250 100	-3 -3	125 100	10 5.8	2.3 1.7		.6 MEG 1325 .3 MEG 950				-21 -17	12C8	
12E5GT	TRIODE	HTR	12.6	0.15	6Q-OGT6	9E	2.8	3.8	2.6	AMP CL A	250 100	-13.5 -5		5.0 2.5		13.8 13.8	9500 12000	1450 1150				12E5GT	
12F5GT	TRIODE	HTR	12.6	.15	5M-OW5	9J	2.0*	6*	12*	AMPLIFIER CLASS A	250 100	-2 -1		0.9 0.4		100 85000	1500 1150					12F5GT	
12H6	DUO DI	HTR	12.6	0.15	7Q-OW7	8C	3.0	3.4	0.10	DETECTOR	150 MAX			8 MAX EACH DIODE								12H6	
12J5GT	TRIODE	HTR	12.6	.15	6Q-OW6	9H	3.8*	4.2*	5.0*	AMPLIFIER CLASS A	250 90	-8 0		9.0 10.0	20 20	7700 6700	2600 3000					12J5GT	
12J7GT	PENTODE	HTR	12.6	.15	7R-OW7	9F	.005*	4.6*	12*	AMP CL A PENT CONN TRI CONN	250 100 250	-3 -3 -8	100 100 100	2.0 2.0 6.5	0.5 0.5	20	1.5MEG 1.0MEG 10500	1225 1185 1900			-7 -7	12J7GT	
12K7GT	PENTODE	HTR	12.6	.15	7R-OW7	9F				AMPLIFIER CLASS A	250 250 100	-3 -3 -1	125 100 100	10.5 7.0 9.5	2.6 1.7 2.7		.6 MEG .8 MEG .15MEG 1650	1650 1450 1650			-52.5 -42.5 -38.5	12K7GT	
12K8GT	TRIODE HEXODE	HTR	12.6	.15	8K-OW8	9GA	.08*	4.6*	4.8*	OSC TRIODE MIXER HEX	100 250 100	.05MEG -3 -3	100 100 100	3.8 2.5 2.3	6.0 6.2		.6 MEG .4 MEG	3000 350C 325C	(TRIODE GRID 0v) -30 -30			12K8GT	
12L8GT	TWIN PENTODE	HTR	12.6	0.15	8BU-OGT8	9H	0.7	5.0	6.0	POWER AMP CLASS A	180	-9	180	13	2.4		0.16MEG	2150	1.0	10000		12L8GT	
12Q7GT	DUO-DI TRIODE	HTR	12.6	.15	7V-OW7	9F	1.6*	2.2*	5*	AMPLIFIER CLASS A	250 100	-3 -1.0		1.0 0.8		70 70	58000 58000	1200 1200				12Q7GT	
12SA7 12SA7GT/C	HEPTODE	HTR	12.6	.15	8R-OW8 8AD-OW8	8E 9E	.13 .20	9.5 11.0*	12 12.0*	OSC SECT MIXER	OSC GRID RES -.02 MEG 250 -2	100 3.5 8.5			OSC GRID CUR -.5ma 1.0MEG 450C						-35	12SA7 12SA7GT/C	
12SC7	TWIN TRI	HTR	12.6	.15	8S-OW8	8E				AMP CL A 1 SEC	250	-2		2		70	53000	1325				12SC7	
12SF5 12SF5GT	TRIODE	HTR	12.6	.15	6AB-OW6 6AB-OGT6	8E 9H	2.6 2.6*	4.2 4.2*	3.8 3.8*	AMPLIFIER CLASS A	250 100	-2 -1		0.9 0.4		100 100	66000 85000	1500 1150					12SF5 12SF5GT

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TYPE	DESIGN	CATHODE HTR OR FIL VOLTS	AMP AMPS	BASING DATA	MAX SIZE VIEW	CAPACITIES G-P mmfd	IN mmfd	OUT mmfd	USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
12SF7	DIODE PENTODE	12.6	0.15	7AZ-OW8	8E	0.004	5.5	6.5	AMP CL A	250 100	-1 -1	125 100	12.4 12	3.3 3.4		0.7MEG 0.2MEG	2050 1975			-35 -35	12SF7
12SG7	PENTODE	12.6	0.15	8BK-OW8	8E	0.003	8.5	7.0	AMP CL A	250 100	-1 -1	125 100	11.8 8.2	4.4 3.2		0.9MEG 0.25MEG	4700 4100			-14 -11.5	12SG7
12SH7	PENTODE	12.6	0.15	8BK-OW8	8E	0.003	8.5	7.0	AMP CL A	250 100	-1 -1	100 100	10.8 5.3	4.1 2.1		0.9MEG 0.35MEG	4900 4000			-5.5 -4	12SH7
12SJ7 12SJ7CT	PENTODE	12.6	.15	8N-OW8 8N-OW8	8E 9E	.005	6.0	7.0	AMPLIFIER CLASS A	250 100	-3 -3	100 100	3.0 2.9	0.8 0.9	2500 1100	1.5MEG 0.7MEG	1650 1575			-9 -9	12SJ7 12SJ7CT
12SK7 12SK7CT/G	PENTODE	12.6	.15	8N-OW8 8N-OW8	8E 9E	.003 .005	6.0 6.5	7.0 7.5	AMPLIFIER CLASS A	250 100	-3 -1	100 100	9.2 13.0	2.6 4.0	2000 2350	0.8MEG .12MEG	2000 2350			-35 -35	12SK7 12SK7CT/G
12SL7CT	TWIN TRI	12.6	0.15	8BD-OGT8	9H				CL A 1 SECT	250	-2		2.3			44000	1600				12SL7CT
12SN7CT	TWIN TRI	12.6	0.3	8BD-OGT8	9H	4L 4R	3.2L 3.8R	2.6R	CL A 1 SECT	250 90	-8 0		9 10		20 20	7700 6700	2600 3000				12SN7CT
12SQ7 12SQ7CT/G	DUO-DI TRIODE	12.6	.15	8Q-OW8 8Q-OW8	8E 9E	1.8	4.2	3.4	AMPLIFIER CLASS A	250 100	-2 -1		0.9 0.4		100 100	91000 110000	1100 900				12SQ7 12SQ7CT/G
12SR7 12SR7CT	DUO-DI TRIODE	12.6	.15	8Q-OW8 8Q-OW8	8E 9H	2.3*	3.5*	3.8*	AMP CL A	250	-9		9.5		16	8500	1900				12SR7 12SR7CT
12Z3	DIODE	12.6	.3	4G-SS4	12B				H W RECT	235 RMS MAX			55 DC MAX								12Z3
14A4	TRIODE	12.6	0.15	5AC-L8	9A	4.0	3.4	3.0	AMP CL A	250 90	-8 0		9 10		20 20	7700 6700	2600 3000				14A4
14A5	PENTODE	12.6	0.15	6AA-L8	9B				POWER AMP CLASS A	250	-12.5	250	30	3.5		50000	3000	2.5	7500		14A5
14A7/12B7	PENTODE	12.6	.15	8V-L8	9A	.005*	5.5*	7.0*	AMP CL A	250 100	-3 -1	100 100	9.2 13.0	2.6 4.0	1600 1600	.8 MEG .12MEG	2000 2350			-35 -35	14A7/12B7
14AF7	TWIN TRI	12.6	0.150	8AC-L8	9A	2.3L 2.3R	2.2L 2.2R	1.6L 1.6R	CL A 1 SECT	250 100	-10 0		9.0 10.8		16 17	7600 6500	2100 2600				14AF7
14B6	DUO-DI TRIODE	12.6	0.15	8W-L8	9A				DETECTOR AMPLIFIER	250 100	-2 -1	0.9 0.4			100 100	91000 110000	1100 900				14B6
14B8	HEPTODE	12.6	0.15	8X-L8	9A	0.20	10	9.0	OSC SECT MIXER	250S 250	.05MEG -3	100	4.0 3.5	2.7		GRID #2 RES .36MEG 550C	.02 MEG			-35	14B8
14C5	BEAM PWR AMP	12.6	0.225	6AA-L8	9B				PR AMP CL A CL AB 2 TUBE	315 285	-13 -19	225 285	34 70	2.2 4		77000 65000	3750 3600	5.5 14	8500 8000		14C5
14C7	PENTODE	12.6	0.15	8V-L8	9A	0.007	6.0	6.5	AMP CL A	250 100	-3 -1	100 100	2.2 5.7	0.7 1.8		1 MEG 0.325	1575 2275			-9 -9	14C7
14E6	DUO-DI TRIODE	12.6	0.15	8W-L8	9A				AMP CL A	250 100	-9 -3		9.5 3.9		16 16.5	8500 11000	1900 1300				14E6
14E7	DUO-DI PENTODE	12.6	0.15	8AE-L8	9A	0.005	4.6	5.3	DETECTOR AMPLIFIER	250 100	-3 -1	100 100	7.5 10	1.6 2.7		0.7MEG 0.15MEG	1300 1600			-42.5 -36	14E7
14F7	TWIN TRI	12.6	0.15	8AC-L8	9A				CL A 1 SECT	250 100	-2 -1		2.3 0.65		70 70	44000 62000	1600 1125				14F7
14H7	PENTODE	12.6	.15	8V-L8	9A	.007*	8.0*	7.0*	AMP CL A	250 100	-2.5 -1	150 100	9.5 8.2	3.5 3.3		.8 MEG .25MEG	3800 3800			-19 -12	14H7

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TYPE	DESIGN	TYPE	CATHODE HTR OR FIL VOLTS AMPS	BASING DATA	MAX SIZE VIEW	CAPACITIES G-P IN OUT mmfd mmfd mmfd	USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
14J7	TRI HEX	HTR	12.6	0.15	8AR-L8	9A	0.01	5.5	7.5	OSC-TRIODE MIXER HEX	250S 250	.05MEG -3	100	5.4 1.3	2.9	TRIODE PLATE 1.5MEG 300C	RESISTOR .02 MEG	-20	14J7
14N7	TWIN TRI	HTR	12.6	0.30	8AC-L8	9B	3.0R 3.0L	2.9R 3.4R	2.4R 2.0L	CL A 1 SECT	250 90	-8 0	9 10	20 20	7700 6700	2600 3000			14N7
14Q7	HEPTODE	HTR	12.6	0.15	8AL-L8	9A	.2	9.0	9.0	OSC SECT MIXER	OSC GRID RESIS - .02 MEG	-2	100	3.5	8.5	OSC GRID CUR - .5mo	1.0MEG 550C	-35	14Q7
14R7	DUO-DI PENTODE	HTR	12.6	0.150	8AE-L8	9A	0.004	3.6	5.3	AMP CL A	250 100	-1 -1	100 5.5	1.7 2.0	1.0 0.35	3200 3000		-20 -16	14R7
14S7	TRI HEX	HTR	12.6	0.15	8AR-L8	9A	0.02	5.0	8.0	OSC-TRIODE MIXER	250 250	-2	100	5.0 1.8	3.0	TRIODE PLATE RESIS .02 MEG		-21	14S7
14V7	PENTODE	HTR	12.6	0.225	8V-L8	9A	0.004	9.5	6.5	HI FREQ AMP	300	-2	150	9.6	3.9	.3 MEG 5800		-6	14V7
14W7	PENTODE	HTR	12.6	0.225	8BJ-L8	9A	0.0025	9.5	7.0	AMP CL A	300 300	-2 -2	150 300	10.0 THRU .04 MEG	3.9 (OTHER VALUES SAME AS ABOVE)	.3 MEG 5800		-6 -14	14W7
14Y4	TWIN DI	HTR	12.6	0.3	5AB-L8	9B				F W RECT	325 RMS MAX COND IN 60 DC MAX 450 RMS MAX CHOKE IN 60 DC MAX					TUBE DROP 20v AT 60ma DC			14Y4
15	PENTODE	HTR	2.0	.22	5F-SS5	12H	.01*	2.4	7.8	AMPLIFIER CLASS A	135 67.5	-1.5 -1.5	67.5 1.85	0.3 .3	600 450	.8 MEG .63MEG 710			15
19	TWIN TR	FIL	2.0	.26	6C-SS6	12B				CLASS B TWO SECT	135 135	0 -6	10 NO SIG 0.1 NO SIG			2.1 1.6	10000 10000		19
20	TRIODE	FIL	3.3	.132	4D-SS4	9Q	4.1	2.0	2.3	PR AMP CL A	135	-22.5	6.5	3.3	6300	525	.11	6500	20
22	TETRODE	FIL	3.3	.132	4K-SM4	14E	.02*	3.3	12	AMP CL A	135	-1.5	67.5	1.3	.33MEG	500			22
24A 24S	TETRODE	HTR	2.5	1.75	5E-SM5 5E-SM5	14E	.007*	5.3	10.5	AMPLIFIER CLASS A	250 180	-3 -3	90 90	4 4	630 400	.6 MEG .4 MEG 1000			24A 24S
25A6 25A6G 25A6GT	PENTODE	HTR	25	.3	7S-OW7 7S-OM7 7S-OW7	8H 14C 9H				AMPLIFIER CLASS A	160 135 95	-18 -20 -15	120 135 95	33 37 20	6.5 8 4	42000 35000 45000	2375 2450 2000	5000 4000 4500	25A6 25A6G 25A6GT
25A7GT/G	DIODE PENTODE	HTR	25	.3	8F-OGT8	14C 9H				H W RECT AMP CL A	117 RMS MAX 100	-15	100	75 DC MAX 20.5	90	TUBE DROP 23v AT 150ma DC	.77 4500		25A7GT/G
25AC5G 25AC5GT	TRIODE	HTR	25	.3	6Q-OS6 6Q-OGT6	12K 9H	6AE5G DRIVER			DIR C'P'D AMP	110 FROM DRIVER	45			2	2000			25AC5G 25AC5GT
25B5	DUO-TRI	HTR	25	0.3	6AS-SS6	14D	DRIVER TRIODE OUTPUT TRIODE			DIR C'P'D AMP 2 TUBES CL A	180 180	-20 +	5.8 46			2300	3.8	4000	25B5
25B6G	PENTODE	HTR	25	.3	7S-OM7	14C				POWER AMP CLASS A	200 135 105	-23 -22 -16	135 61 48	1.8 2.5 2.0	18000 15000 15500	5000 5000 4800	2500 1700 1700	25B6G	
25B8CT	TRIODE PENTODE	HTR	25	.15	8T-OGT8	9L				CL A TRIODE CL A PENTODE	100 100	-1 -3	100	0.6 7.6	2.0	.08MEG .19MEG 2000		-2.5 -41	25B8CT
25C6G	BM PWR	HTR	25	.3	7AC-OM7	14C				POWER AMP CLASS A	200 135	-14 -13.5	135 58	2.2 3.5	18300 9300	7100 7000	6.0 3.6	2600 2000	25C6G
25D8CT	DIODE TRIODE PENTODE	HTR	25	0.15	8AU-OGT8	9HA	2.5 0.015	3.7 5.2	4.5 10	DETECTOR CL A TRIODE CL A PENTODE	100 100	-1 -3	100	0.5 8.5	2.7	91000 0.2MEG 1900		-35	25D8CT

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TYPE	DESIGN	CATHODE HTR OR FIL VOLTS	BASING DATA	MAX SIZE VIEW	CAPACITIES G-P mmfd	IN mmfd	OUT mmfd	USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
25L6 25L6CT/G	BEAM PWR AMP	HTR	25	.3	7AC-OW7 7AC-OGT7	8H 9H		POWER AMP CLASS A	110 200	-7.5 -8.0	110 110	49 50	4 1.5		10000 35000	8200 8250	2.1 4.3	2000 3000		25L6 25L6CT/G
		HTR	25	0.3	7AU-OM7	14C	DRIVER TRIODE OUTPUT TRIODE	DIR C'P'D AMP	180 180	-20 +		5.8 4.6		35	15200	2300	3.8	4000		25N6G
25X6CT	TWIN DIODE	HTR	25	0.15	7Q-OGT7	9H		H W RECT V DOUBLER	250 RMS MAX 125 RMS MAX			60 DC MAX 60 DC MAX			TUBE DROP 25v	AT 120ma DC				25X6CT
25Y4CT	DIODE	HTR	25	0.15	5AF-OGT7	9H		H W RECT	125 RMS MAX			75 DC MAX			TUBE DROP 18v	AT 125ma DC				25Y4CT
25Y5	TWIN DIODE	HTR	25	.3	6E-SS6	12B		H W RECT V DOUBLER	250 RMS MAX 117 RMS MAX			85 DC MAX 85 DC MAX			(EXPORT TYPE)					25Y5
25Z4CT	DIODE	HTR	25	0.3	5AF-OGT7	9H		H W RECT	125 RMS MAX			125 DC MAX			TUBE DROP 12v	AT 125ma DC				25Z4CT
25Z5	TWIN	HTR	25	.3	6E-SS6	12B		H W RECT	235 RMS MAX			75 DC MAX			TUBE DROP 22v	AT 150 ma DC				25Z5
25Z6	DIODE				7Q-OW7	8H		V DOUBLER	117 RMS MAX			75 DC MAX								25Z6
25Z6CT/G					7Q-OGT7	9H														25Z6CT/G
26	TRIODE	FIL	1.5	1.05	4D-SM4	14D	8.1	3.5	2.2	AMP CL A	180	-14.5	6.2		8.3	7300	1140			26
27	TRIODE	HTR	2.5	1.75	5A-SS5	12B	3.3	3.5	3.0	AMPLIFIER CLASS A	250 135	-21 -9	5.2 4.5	9 9	9250 9000	975 1000				27
27S					5A-SS5															27S
28D7	TW PENT	HTR	28	0.40	8BS-L8	9B			PR AMP CL A	28	-3.5	28	12.5	1.0	3000	3000	.1	4000		28D7
28Z5	TWIN DI	HTR	28	0.24	6BJ-L8	9B			FULL WAVE RECTIFIER	325 RMS MAX 450 RMS MAX			100 DC MAX 100 DC MAX			TUBE DROP 40v	AT 100ma DC			28Z5
30	TRIODE	FIL	2.0	.06	4D-SS4	12B	6.0	3.7	2.1	AMP CL A BIAS DET	180 180	-13.5 -18	3.1 0.2	9.3 WITH NO SIGNAL	10300	900	(SEE 1H4G ALSO)			30
31	TRIODE	FIL	2.0	.13	4D-SS4	12B	5.7	3.5	2.7	AMPLIFIER CLASS A	180 135	-30 -22.5	12.3 8	3.8 3.8	3600 4100	1050 925	.375 .185	5700 7000		31
32	TETRODE	FIL	2.0	.06	4K-SM4	14E	.015*	5.3	10.5	AMPLIFIER CLASS A	180 135	-3 -3	67.5 67.5	1.7 1.7	0.4 610	1.2MEG .95MEG	650 640			32
32L7CT	DIODE BM PWR	HTR	32.5	.3	8Z-OGT8	9H			H W RECT POWER AMP CLASS A	125 RMS MAX 110 90	-7.5 -7	110 90	40 27	3 2	15000 17000	6000 4800	1.5 1.0	2500 2600		32L7CT
33	PENTODE	FIL	2.0	.26	5K-SM5	14D			POWER AMP CLASS A	180 135	-18 -13.5	180 135	22 14.5	5 3	55000 50000	1700 1450	1.4 0.7	6000 7000		33
34	PENTODE	FIL	2.0	.06	4M-SM4	14E	.015*	6.0	11.5	AMPLIFIER CLASS A	180 67.5	-3 -3	67.5 67.5	2.8 2.7	1.0 1.1	1 MEG 0.4MEG	620 560	-22.5 -22.5		34
35/51 35S/51S	TETRODE	HTR	2.5	1.75	5E-SM5 5E-SM5	14E	.007*	5.3	10.5	AMPLIFIER CLASS A	250 180	-3 -3	90 90	6.5 6.3	2.5 305	0.4MEG 0.3MEG	1050 1020		-40.0 -40.0	35/51 35S/51S
35A5	BM PWR	HTR	32	.15	6AA-L8	9B			POWER AMP CLASS A	110 200	-7.5 -8.0	110 110	40 41	3.0 2.0	14000 40000	5800 5900	1.5 3.3	2500 4500		35A5
35L6CT/G	BM PWR	HTR	35	.15	7AC-OGT7	9H			POWER AMP CLASS A	110 200	-7.5 -8.0	110 110	40 41	3.0 2.0	13800 40000	5800 5900	1.5 3.3	2500 4500		35L6CT/G
35Y4	DIODE	HTR	35	0.15	5AL-L8	9B			H W RECT LAMP TAP	235 RMS MAX			100 DC MAX or 60 DC MAX WITH 6.3v			150ma PANEL LAMP TUBE DROP 18v	AT 200ma DC			35Y4
35Z3	DIODE	HTR	32	.15	4Z-L8	9B			H W RECT	235 RMS MAX			100 DC MAX			TUBE DROP 20v	AT 200ma DC			35Z3

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TYPE	DESIGN	CATHODE HTR OR FIL VOLTS	BASING DATA	MAX SIZE VIEW	CAPACITIES C-P IN OUT mmfds mmfds mmfds	USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
35Z4CT	DIODE	HTR	35	.15	5AA-OGT6 9H													35Z4CT
35Z5CT/G	DIODE	HTR	35	.15	6AD-OGT6 9H													35Z5CT/G
35Z6G	TWIN DIODE	HTR	35	.3	7Q-OM7 14C													35Z6G
36	TETRODE	HTR	6.3	.3	5E-SS5													36
37	TRIODE	HTR	6.3	.3	5A-SS5													37
38	PENTODE	HTR	6.3	.3	5F-SS5													38
39/44	PENTODE	HTR	6.3	.3	5F-SS5													39/44
40	TRIODE	FIL	5.0	.25	4D-SM4													40
41	PENTODE	HTR	6.3	.4	6B-SS6													41
42	PENTODE	HTR	6.3	.7	6B-SM6													42
43	PENTODE	HTR	25	.3	6B-SM6													43
45	TRIODE	FIL	2.5	1.5	4D-SM4													45
45Z3	DIODE	HTR	45	0.075	5AM-MB7													45Z3
45Z5CT	DIODE	HTR	45	.15	6AD-OGT6 9H													45Z5CT
46	DUAL GRID TRIODE	FIL	2.5	1.75	5C-SM5													46
47	PENTODE	FIL	2.5	1.75	5B-SM5													47
48	PENTODE	HTR	30	.4	6B-SM6													48
49	DUAL GRID TRIODE	FIL	2.0	.12	5C-SM5													49
50	TRIODE	FIL	7.5	1.25	4D-SM4B													50
50A5	PENTODE	HTR	50	0.15	6AA-L8 9B													50A5
50C6G	BM PWR	HTR	50	.15	7AC-OM7 14C													50C6G
50L6CT	BM PWR	HTR	50	.15	7AC-OGT7 9H													50L6CT

SEE PAGE 5 FOR DATA CHART REFERENCE NOTES

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TYPE	DESIGN	TYPE	CATHODE HTR OR FIL VOLTS/AMPS	BASING DATA	MAX SIZE VIEW	C-P mmfds	CAPACITIES IN OUT mmfds mmfds	USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
50Y6GT/G	TWIN DIODE	HTR	50	.15	7Q-OM7	9H														50Y6GT/G
50Z7G	TWIN DIODE	HTR	50	.15	8AN-OS7	12E														50Z7G
52	2 GRID TRIODE	FIL	6.3	.3	5C-SM5	14D														52
53	TWIN TRIODE	HTR	2.5	2.0	7B-SM7	14D														53
55	DUO-DI TRIODE	HTR	2.5	1.0	6G-SS6	12H														55
55S	TRIODE	HTR	2.5	1.0	6G-SS6	12H														55S
56	TRIODE	HTR	2.5	1.0	5A-SS5	12B														56
56S	TRIODE	HTR	2.5	1.0	5A-SS5	12B														56S
56AS	TRIODE	HTR	6.3	.3	5A-SS5	12B														56AS
57	PENTODE	HTR	2.5	1.0	6F-SS6	12J														57
57S	PENTODE	HTR	2.5	1.0	6F-SS6	12J														57S
57AS	PENTODE	HTR	6.3	.4	6F-SS6	12J														57AS
58	PENTODE	HTR	2.5	1.0	6F-SS6	12J														58
58S	PENTODE	HTR	2.5	1.0	6F-SS6	12J														58S
58AS	PENTODE	HTR	6.3	.4	6F-SS6	12J														58AS
59	PENTODE	HTR	2.5	2.0	7A-SM7	16B														59
70A7GT	DI BEAM PR AMP	HTR	70	.15	8AB-OGT8	9H														70A7GT
70L7GT	DIODE BM PWR	HTR	70	.15	8AA-OGT8	9H														70L7GT
71A	TRIODE	FIL	5	.25	4D-SM4B	14D														71A
75	DUO-DI TRIODE	HTR	6.3	.3	6G-SS6	12H														75
75S	TRIODE	HTR	6.3	.3	6G-SS6	12H														75S
76	TRIODE	HTR	6.3	.3	5A-SS5	12B														76
77	PENTODE	HTR	6.3	.3	6F-SS6	12H														77
78	PENTODE	HTR	6.3	.3	6F-SS6	12H														78
79	TWIN TR	HTR	6.3	.6	6H-SS6	12H														79
80	TWIN DI	FIL	5.0	2.0	4C-SM4	14D														80
81	DIODE	FIL	7.5	1.25	4B-SM4	16B														81

SEE PAGE 5 FOR DATA CHART REFERENCE NOTES

TYPE	DESIGN	CATHODE TYPE	HTR OR FIL VOLTS	AMP	BASING DATA	MAX SIZE VIEW	CAPACITIES			USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
82	TWIN DI	FIL	2.5	3.0	4C-SM4	14D	(MERCURY VAPOR)	G-P mmfds	IN mmfds	OUT mmfds	FULL WAVE RECTIFIER	450 RMS MAX 550 RMS MAX	COND CHOKE IN 115 DC MAX	8	8.3	7500 8500	1100 975	.35 .16	20000 20000			82
83	TWIN DI	FIL	5.0	3.0	4C-SM4	16B	(MERCURY VAPOR)				FULL WAVE RECTIFIER	450 RMS MAX 550 RMS MAX	COND CHOKE IN 225 DC MAX	6	8.3	7500 8500	1100 975	.35 .16	20000 20000			83
83V	TWIN DI	HTR	5.0	2.0	4AD-SM4	14D					FULL WAVE RECTIFIER	375 RMS MAX 500 RMS MAX	COND CHOKE IN 175 DC MAX	5.5	20							83V
84/6Z4	TWIN DI	HTR	6.3	.5	5D-SS5	12B					FULL WAVE RECTIFIER	325 RMS MAX 450 RMS MAX	COND CHOKE IN 60 DC MAX	8	8.3	7500 8500	1100 975	.35 .16	20000 20000			84/6Z4
85	DUO-DI TRIODE	HTR	6.3	.3	6G-SS6	12H		1.7	2.0	3.5	AMP CL A	250 180	—20 —13.5	8	8.3	7500 8500	1100 975	.35 .16	20000 20000			85
85AS	DUO-DI TRIODE	HTR	6.3	0.3	6G-SS6						AMP CL A	250	—9	5.5	20							85AS
89	PENTODE	HTR	6.3	.4	6F-SS6	12H	G ₂ TIED TO K G ₁ TIED TO G ₂				PENT PR AMP CLASS A CL B 2 TUBE	250 135 180	—25 —13.5 0	32 14 6 NO SIGNAL	5.5 2.2 6 NO SIGNAL	125 125	70000 92500 G ₃ TIED TO P 3.5	1800 1350 9200 9400	6750 9200			89
V99 X99	TRIODE	FIL	3.3	.063	4E-SV4 4D-SS4	8A 9Q		3.3	2.5	2.5	AMP CL A BIAS DET	90 90	—4.5 —10.5	2.5 0.2 WITH NO SIGNAL	6.6	425	15500					V99 X99
117L/M7CT	DI BEAM PR AMP	HTR	117	.09	8AO-OGT8	9HA					H W RECT PR AMP CL A	117 RMS MAX 105	—5.2 105	75 DC MAX 43	4		TUBE DROP 16v AT 160ma DC	1500 5300	185 4000	160ma DC		117L/M7CT
117N7CT	DI BEAM PR AMP	HTR	117	.09	8AV-OGT8	9HA					H W RECT PR AMP CL A	117 RMS MAX 100	—6 100	75 DC MAX 51	6.0		TUBE DROP 16v AT 150ma DC	16000 7000	1.2 3000	150ma DC		117N7CT
117P7CT	DI BEAM PWR AMP	HTR	117	0.09	8AV-OGT8	9HA					H W RECT PR AMP CL A	117 RMS MAX 105	—5.2 105	75 DC MAX 43	4		TUBE DROP 16v AT 50ma DC	17000 5300	10.85 4000	50ma DC		117P7CT
117Z4CT	DIODE	HTR	117	0.04	5AA-OGT6	9H					H W RECT	117 RMS MAX		90 DC MAX			TUBE DROP 22.5v AT 180ma DC			180ma DC		117Z4CT
117Z6CT	TWIN DIODE	HTR	117	.075	7Q-OGT7	9H					RECTIFIER V DOUBLER	235 RMS MAX 117 RMS MAX		60 DC MAX 60 DC MAX			TUBE DROP 15.5v AT 125ma DC			125ma DC		117Z6CT
182B/482B	TRIODE	FIL	5.0	1.25	4D-SM4	14D					PR AMP CL A	250	—35	18	5		1500					182B/482B
183/483	TRIODE	FIL	5.0	1.25	4D-SM4	14D					PR AMP CL A	250	—58	20	3		1500					183/483
485	TRIODE	HTR	3.0	1.25	5A-SS5	12B					AMP CL A	180	—10	5.2	12.8		1300					485
950	PENTODE	FIL	2.0	.12	5K-SM5	14D					PR AMP CL A	135	—16.5	135	2.0	100	.1 MEG	1000	.45	13500		950
BA	TWIN DI	COLD			4J-SM4	19B	GAS FILLED				F W RECT	350 RMS MAX		350 DC MAX			TUBE DROP 80v					BA
BH	TWIN DI	COLD			4J-SM4	14A	GAS FILLED				F W RECT	350 RMS MAX		125 DC MAX			TUBE DROP 90v					BH
BR	DIODE	COLD			4H-SM4	12A	GAS FILLED				H W RECT	300 RMS MAX		50 DC MAX			TUBE DROP 60v					BR
CK1003/ 0Z4A		SEE 0Z4A/1003																				CK1003/ 0Z4A
VR75-30		SEE 0A3/VR75																				VR75-30
VR90-30		SEE 0B3/VR90																				VR90-30
VR105-30		SEE 0C3/VR105																				VR105-30
VR150-30		SEE 0D3/VR150																				VR150-30
XXD	TWIN TRIODE	HTR	12.6	.15	8AC-18	9A		2.3	2.2	1.6	AMP CL A 1 SEC	250 100	—10 0	9	16		7600 6500	2100 2600				XXD
XXL	TRIODE	HTR	6.3	.3	5AC-18	9A		2.0	3.4	2.6	AMP CL A	250 100	—8 0	8	20		8700 7000	2300 3600				XXL

SEE PAGE 5 FOR DATA CHART REFERENCE NOTES

RAYTHEON

SPECIAL PURPOSE TUBES

RAYTHEON

TYPE	DESIGN	CATHODE HTR OR FIL VOLTS	BASING DATA	MAX SIZE VIEW	CAPACITIES			USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
					G-P mmfd	IN mmfd	OUT mmfd													
717A	PENTODE	HTR	6.3	0.175	8BK-OCT8	9T	.025	4.8	3.2	AMP CL A	120	7.5	2.5		.39MEG	4000				717A
954	PENTODE	HTR	6.3	0.15	954	4A	0.007	3.4	3.0	AMP CL A	250	2.0	0.7		1.5MEG	1300			-7	954
955	TRIODE	HTR	6.3	0.15	955	4B	1.4	1.0	0.6	AMP OSC	250	6.3		25	11400	2200				955
956	PENTODE	HTR	6.3	0.15	956	4A	0.007	3.4	3.0	AMP CL A	250	6.7	2.7		0.7MEG	1800			-45	956
957	TRIODE	FIL	1.25	0.05	957	4B	1.2	0.3	0.7	AMP OSC	135	2.0			24600	650				957
1005/ CK1005	TWIN DIODE	FIL	6.3	0.1	5AQ-OW8	8E				FULL WAVE RECTIFIER	160						70 DC MAX — 0ma MIN. — TUBE DROP 20v AT 70ma			1005/ CK1005
1006/ CK1006	TWIN DIODE	COLD FIL	1.75	2.00	4C-SM4	14D				FULL WAVE RECTIFIER	560						200 DC MAX — (70 DC MIN.) — TUBE DROP 30v AT 200ma			1006/ CK1006
CK1007	TWIN DIODE	COLD FIL	1.0	1.2	1007-OW6	8E				FULL WAVE RECTIFIER	285						200 DC MAX — (0 DC MIN.) — TUBE DROP 25v AT 200ma			CK1007
9001	PENTODE	HTR	6.3	0.15	7BD-MB7	5A	0.01	3.6	3.0	AMPLIFIER CLASS A	250 90	2.0 1.2	0.7 0.5		1.5MEG 1.0MEG	1400 1100			-8 -6	9001
9002	TRIODE	HTR	6.3	0.15	6BG-MB7	5A	1.4	1.2	1.1	AMP OSC	250 90	6.3 2.5		25 25	11400 14700	2200 1700				9002
9003	PENTODE	HTR	6.3	0.15	7BD-MB7	5A	0.01	3.4	3.0	AMP CL A	250	6.7	2.7		0.7MEG	1800			-45	9003
9006	DIODE	HTR	6.3	0.15	6BH-MB7	5A	2.0	0.6	3.2	DETECTOR	300 RMS MAX	5ma MAX				RESONANT FREQUENCY 700mc				9006

RAYTHEON

FLAT HEARING AID TUBES

RAYTHEON

TYPE	DESIGN	CATHODE HTR OR FIL VOLTS	BASING DATA	MAX SIZE VIEW	CAPACITIES			USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	VOLTAGE GAIN	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	TUBE WEIGHT OUNCES	TYPE
					G-P mmfd	IN mmfd	OUT mmfd													
CK502AX	PENTODE	FIL	1.25	0.030	Term Conn. See Max. Size View	3C			45	-1.5	45	.45	.11		.25MEG	500	.006	0.1MEG	.09	CK502AX
CK503AX	PENTODE	FIL	1.25	0.030	Term Conn. See Max. Size View	3C			45	-2.5	45	0.5	.18		.4 MEG	475	.010	0.05MEG	.09	CK503AX
CK505AX	PENTODE	FIL	0.625	0.030	Term Conn. See Max. Size View	3B			30	0	30	.20	.07	35	.5 MEG	180		1MEG	.07	CK505AX
CK506AX	PENTODE	FIL	1.25	0.050	Term Conn. See Max. Size View	3C			45	-4.5	45	1.25	0.4			500	.025	.03MEG	.09	CK506AX
CK507AX	PENTODE	FIL	1.25	0.050	Term Conn. See Max. Size View	3C			45	-2.5	45	.6	.21		.3 MEG	500	.012	0.05MEG	.09	CK507AX
CK509AX	TRIODE	FIL	0.625	0.030	Term Conn. See Max. Size View	3A			45	0		.15		16	.15MEG	160		1MEG	.07	CK509AX

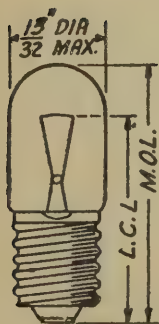
SEE PAGE 5 FOR DATA CHART REFERENCE NOTES

RADIO PANEL LAMPS

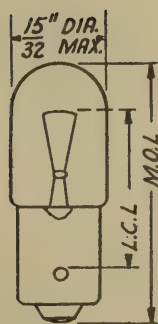
Raytheon Dependable Radio Panel Lamps are of the highest quality and are designed especially to meet the requirements of the renewal market.

TYPE NO.	VOLTS	AMPS.	APPROX. CANDLE POWER	BULB	BASE	BEAD COLOR	LIGHT CENTER LENGTH	MAX. OVERALL LENGTH	TYPE NO.
40	6-8	0.15	0.5	T-3¼	Min. Screw	Brown	32"	1½"	40
40-A	6-8	0.15	0.5	T-3¼	Min. Bayonet	Brown	33"	1½"	40-A
41	2.5	0.5	0.5	T-3¼	Min. Screw	White	32"	1½"	41
42	3.2	0.5	0.75	T-3¼	Min. Screw	Green	32"	1½"	42
43	2.5	0.5	0.5	T-3¼	Min. Bayonet	White	33"	1½"	43
44	6-8	0.25	0.8	T-3¼	Min. Bayonet	Blue	33"	1½"	44
45	3.2	0.5	0.75	T-3¼	Min. Bayonet	Green	33"	1½"	45
46	6-8	0.25	0.8	T-3¼	Min. Screw	Blue	32"	1½"	46
47	SAME CHARACTERISTICS AS 40A, WITH WHICH IT IS INTERCHANGEABLE								47
48	2.0	0.06	0.03	T-3¼	Min. Screw	Pink	32"	1½"	48
49	2.0	0.06	0.03	T-3¼	Min. Bayonet	Pink	33"	1½"	49
49-A	2.1	0.12	0.07	T-3¼	Min. Bayonet	White	33"	1½"	49-A
50	6-8	0.2	1.0	G-3½	Min. Screw	White	33"	1½"	50
51	6-8	0.2	1.0	G-3½	Min. Bayonet	White	½"	1½"	51
55	6-8	0.4	1.5	G-4½	Min. Bayonet	White	½"	1½"	55
292	2.9	0.17	0.3	T-3¼	Min. Screw	White	33"	1½"	292
292-A	2.9	0.17	0.3	T-3¼	Min. Bayonet	White	33"	1½"	292-A

Note: The color of the bead inside the lamp bulb may be used to identify the more common Raytheon types. This information is shown in the column headed "Bead Color."



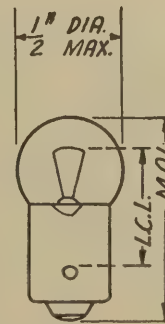
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292



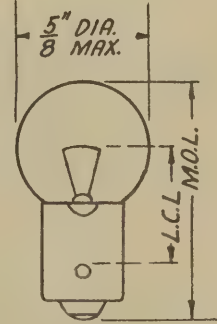
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45
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49A
292A



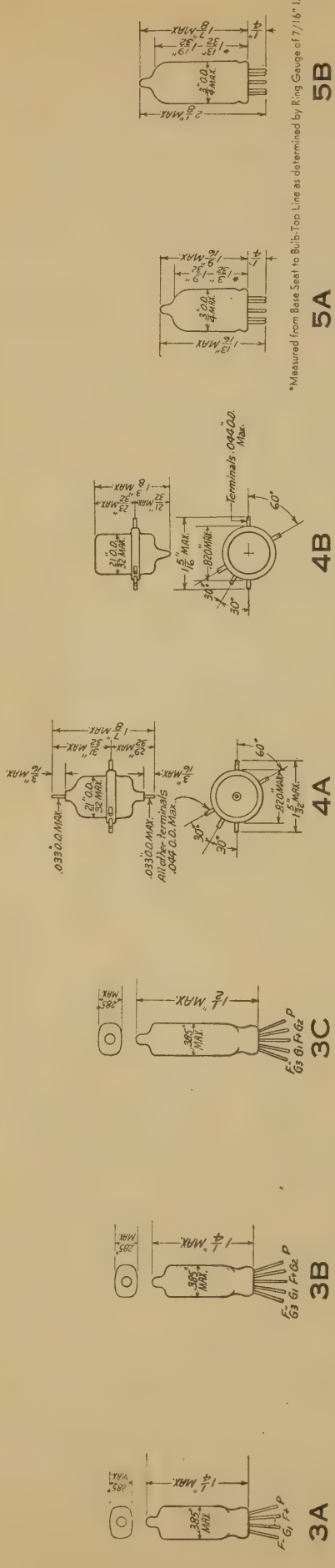
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51



55



3A

3B

3C

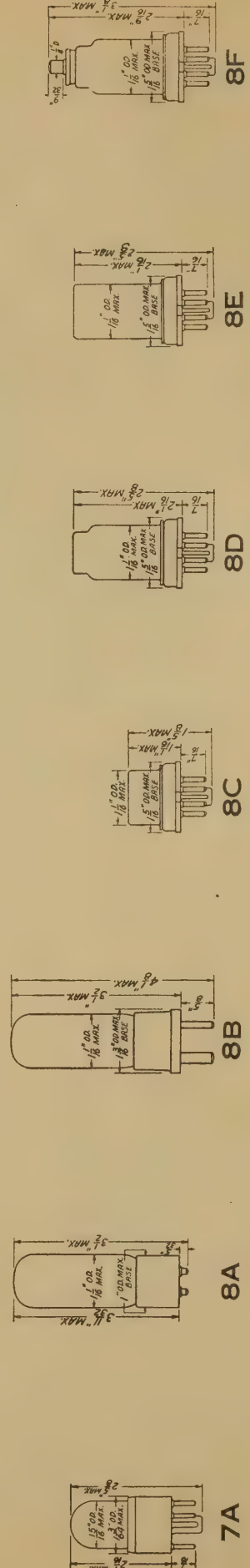
4A

4B

5A

5B

*Measured from Base Seat to Bulb-Top Line as determined by Ring Gauge of 17/16" I.D.



7A

8A

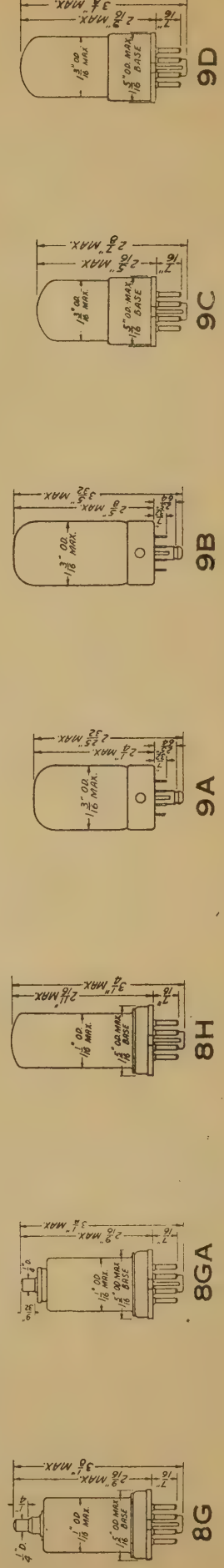
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8C

8D

8E

8F



8G

8H

8I

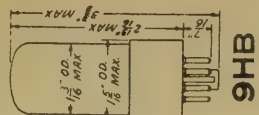
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9B

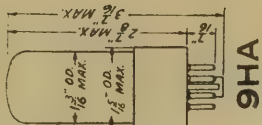
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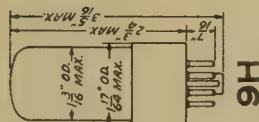
TUBE OUTLINE DRAWINGS



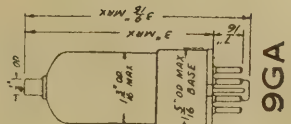
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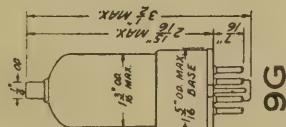
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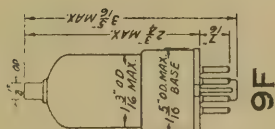
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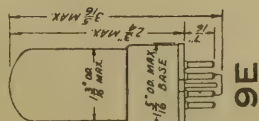
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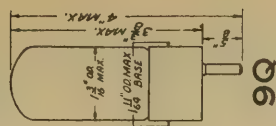
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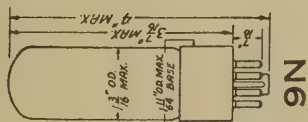
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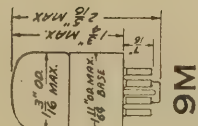
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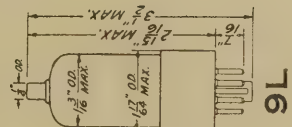
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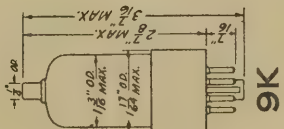
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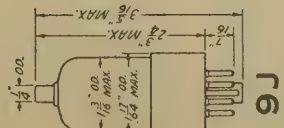
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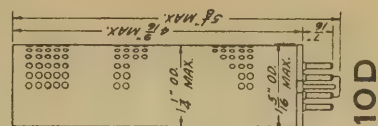
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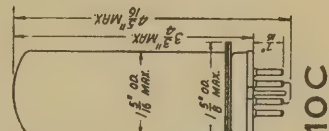
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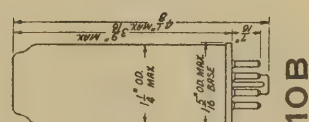
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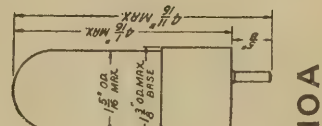
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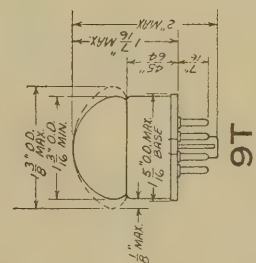
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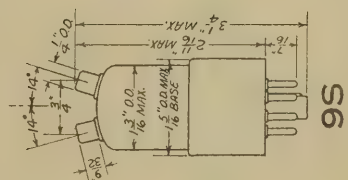
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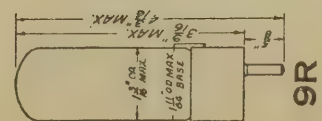
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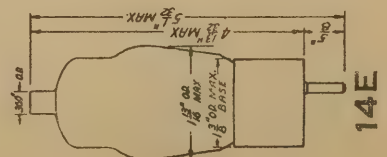
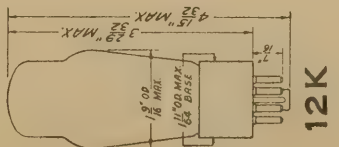
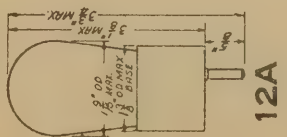
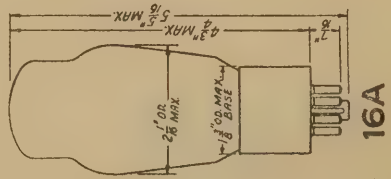
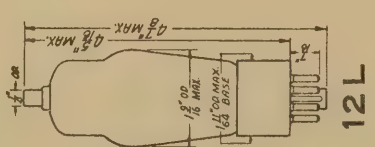
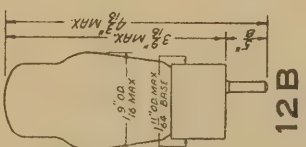
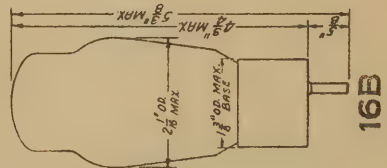
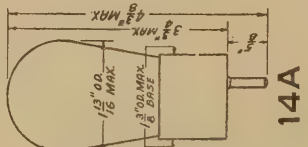
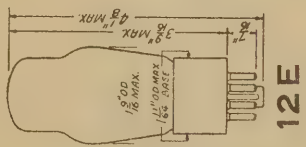
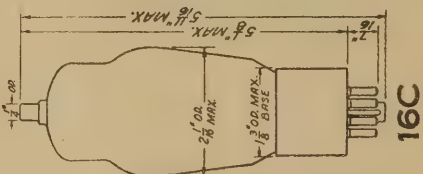
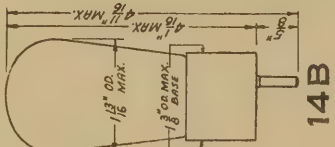
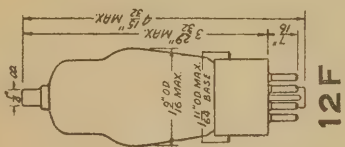
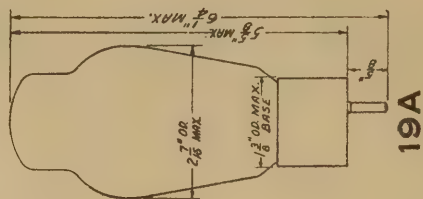
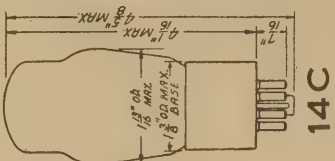
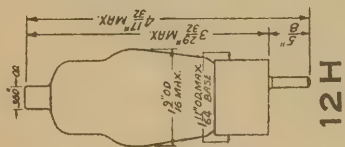
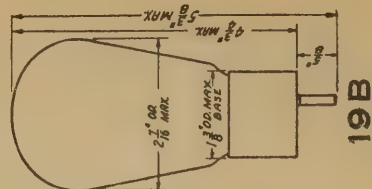
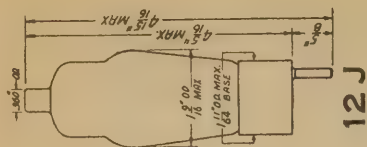
9T



9S



9R



TUBE OUTLINE DRAWINGS

LIST OF SYMBOLS

A	ANODE
As	STARTER ANODE
D	DIODE PLATE
D _b	DIODE PLATE—BOTTOM
D _L	DIODE PLATE—LEFT
D _r	DIODE PLATE—RIGHT
D _t	DIODE PLATE—TOP
DEF	DEFLECTOR PLATES
EC	CONTROL ELECTRODE
F	FILAMENT
F _t	FILAMENT TAP
G	GRID
G ₁	GRID NO. 1
G ₂	GRID NO. 2
G ₃	GRID NO. 3
G ₄	GRID NO. 4
G ₅	GRID NO. 5
G ₆	GRID NO. 6
G _{1H}	HEPTEODE GRID NO. 1
G _{2H}	HEPTEODE GRID NO. 2
G _{3H}	HEPTEODE GRID NO. 3
G _{4H}	HEPTEODE GRID NO. 4
G _{5H}	HEPTEODE GRID NO. 5
G _{1HX}	HEXODE GRID NO. 1
G _{2HX}	HEXODE GRID NO. 2
G _{3HX}	HEXODE GRID NO. 3
G _{4HX}	HEXODE GRID NO. 4
G _{1L}	GRID NO. 1—LEFT
G _{1P}	PENTODE GRID NO. 1
G _{2P}	PENTODE GRID NO. 2
G _{3P}	PENTODE GRID NO. 3
G _{1R}	GRID NO. 1—RIGHT
G _{1N}	GRID—INPUT SECT.
G _L	GRID—LEFT
G _R	GRID—RIGHT
G _T	TRIODE GRID
H	HEATER
H _t	HEATER TAP
IS	INTERNAL SHIELD
K	CATHODE
K _d	DIODE CATHODE
K _L	CATHODE—LEFT
K _r	CATHODE—RIGHT
K _p	CATHODE—OUTPUT SECT.
K _t	PENTODE CATHODE
K _r	CATHODE—RIGHT
K _t	TRIODE OR TETRODE CATH.
NC	NO CONNECTION
P	PLATE
P _H	HEPTEODE PLATE
P _{HX}	HEXODE PLATE
P _{IN}	PLATE—INPUT SECT.
P _L	PLATE—LEFT
P _O	PLATE—OUTPUT SECT.
P _P	PENTODE PLATE
P _r	PLATE—RIGHT
P _t	TRIODE OR TETRODE PLATE
SH	SHELL
T	TARGET
XS	EXTERNAL SHIELD
SH	INDICATES METAL BASE SHELL.
INDICATES METAL BASE SHELL.	
SUBSCRIPTS R & L INDICATE	
RIGHT & LEFT ELEMENTS WHEN	
LOOKING DOWN ON TOP OF TUBE	
WITH LOCATING LUG OF KEY OR	
FILAMENT PINS AT FRONT.	

4B



4C



4D



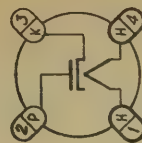
4E



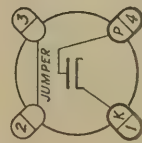
4F



4G



4H



4J



4K



4M



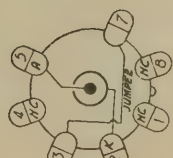
4R



4V



4W



4X



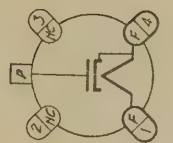
4Z



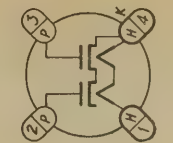
4AA



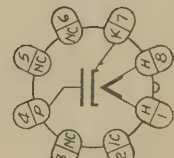
4AB



4AD



4AH



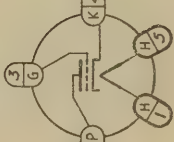
4AJ



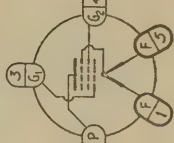
4AM



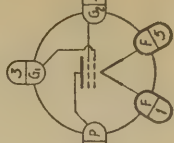
5A



5B



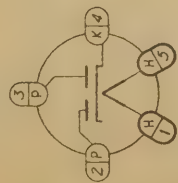
5C



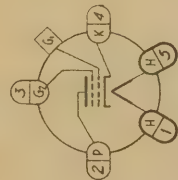
27S
56S
56AS

Pin 4-K.XS

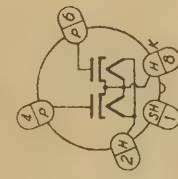
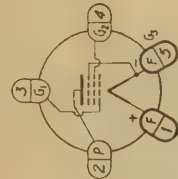
BASE CONNECTION DIAGRAMS
(VIEWED FROM BOTTOM OF BASE) (RMA NUMBERING SYSTEM)



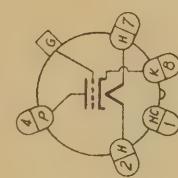
2S, 4S P_{in} 4-K, XS



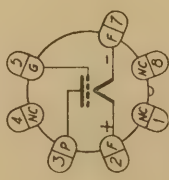
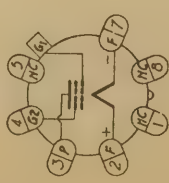
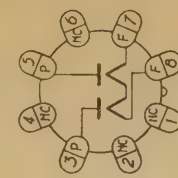
24S [P₁₀ 4-KXS
35S/5IS]



SV4G Pin I-NC



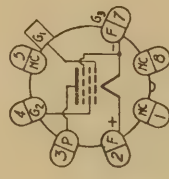
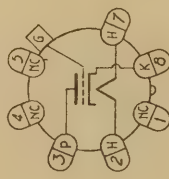
6F5
6F5GT
12F5GT



1E4G, Pin 1-1S
2A4G
6B4G - Pin 6-NC



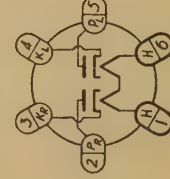
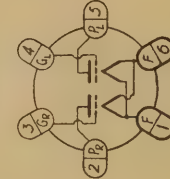
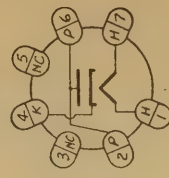
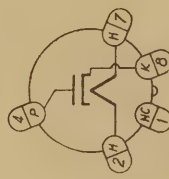
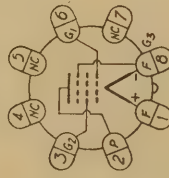
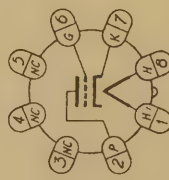
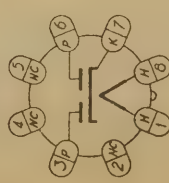
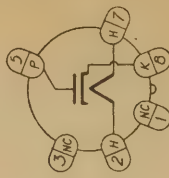
5T4 } Pin 1-SH
5W4 }
5U4G Pins 3,5,7-NC



INSGT Pin 1-SH



HS-1 Pin 1-SH



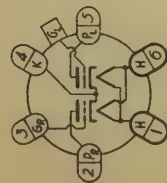
55S } Pin 5-K,XS
75S }
85AS Pin 6-H,XS

57S
57AS
58S
58AS

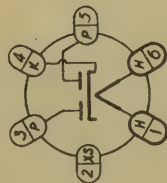
BASE CONNECTION DIAGRAMS
(VIEWED FROM BOTTOM OF BASE) (RMA NUMBERING SYSTEM)

BASE CONNECTION DIAGRAMS

6H



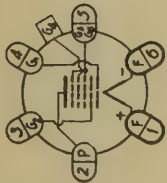
6J



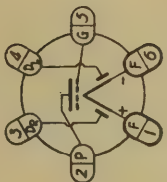
6K



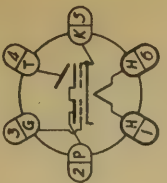
6L



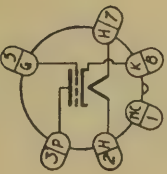
6M



6R



6Q



6C5
6J5
6J5GT
12E5GT
12J5GT
6C5G

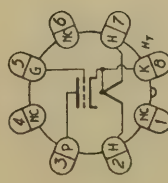
Pin 1-SH
Pin 1-IS

6S



6X5 Pin 1-SH

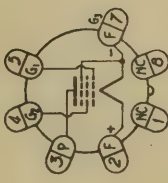
6T



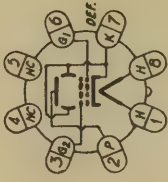
6W



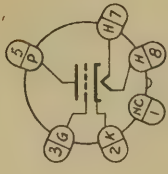
6X



6AA



6AB

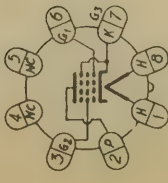


6SF5 Pin 1-SH

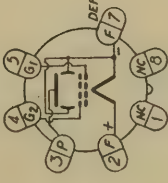
6AD



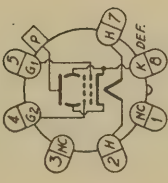
6AE



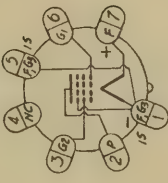
6AF



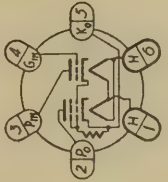
6AM



6AR



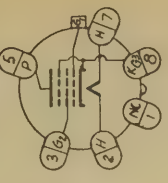
6AS



6AU



6AW



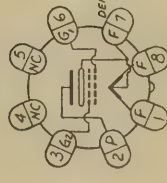
6AX



6BA



6BB



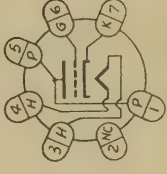
6BD



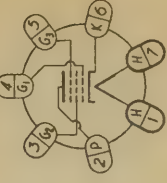
6BE



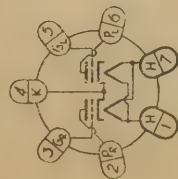
6BG



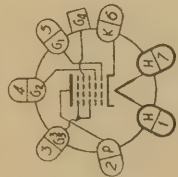
7A



7B

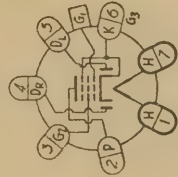


7C



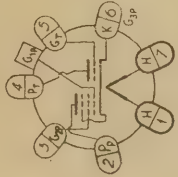
2A7S] Pin 6-K, XS
6A7S]

7D



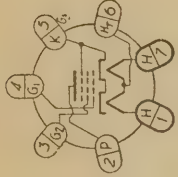
2B7S] Pin 6-K, G₃, XS
6B7S]

7E

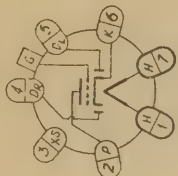


6F7S Pin 6-K, G₃, XS

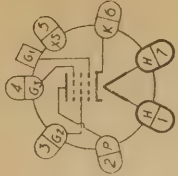
7F



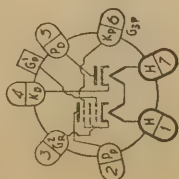
7G



7H



7K

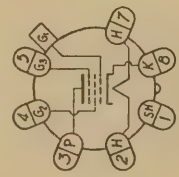


7Q



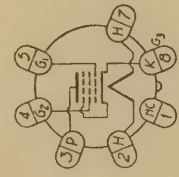
6H6 Pin 1-SH, IS
6H6G Pin 1-S
6H6GT Pin 1-SH, IS
25Z6 Pin 1-SH

7R



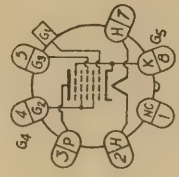
6J7G Pin 1-S
6K7G Pin 1-S
6S7G Pin 1-NC
6U7G
6W7G Pin 1-SH, IS

7S



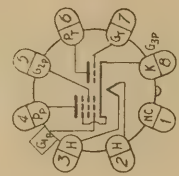
6F6 Pin 1-SH
25A6
25A6GT] Pin 1-SH

7T

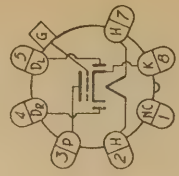


6L7 Pin 1-SH

7U

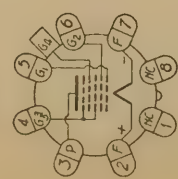


7V



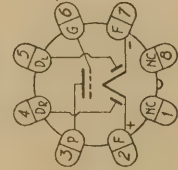
6O7
6O7GT
6R7
6R7GT
12O7GT] Pin 1-SH

7Z

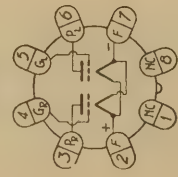


1A7GT Pin 1-SH

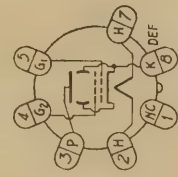
7AA



7AB

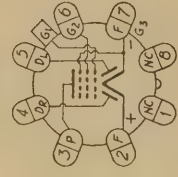


7AC

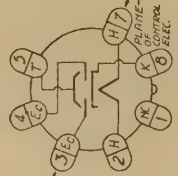


6L6
6V6
25L6] Pin 1-SH

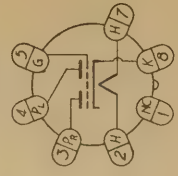
7AD



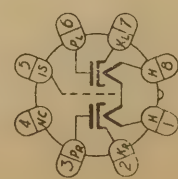
7AG



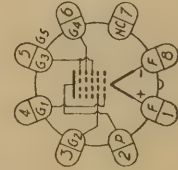
7AH



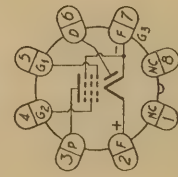
7AJ



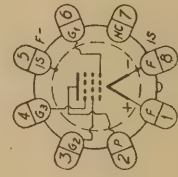
7AK



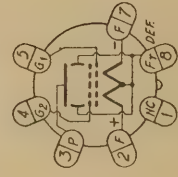
7AM



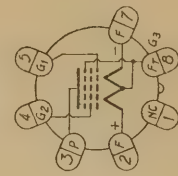
7AO



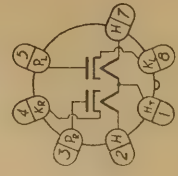
7AP



7AQ

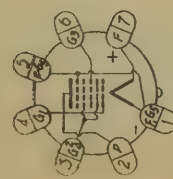


7AR



BASE CONNECTION DIAGRAMS
(VIEWED FROM BOTTOM OF BASE) (RMA NUMBERING SYSTEM)

7AT

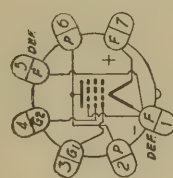


7AU

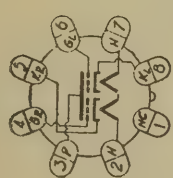


6N6MG Pin 1-SH

7AV



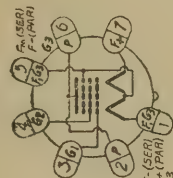
7AX



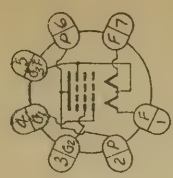
7AZ



7BA



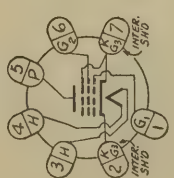
7BB



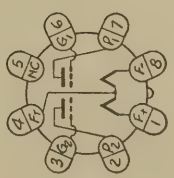
7BC



7BD



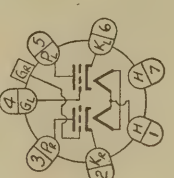
7BE



7BF



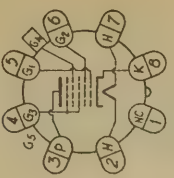
7BH



7BK

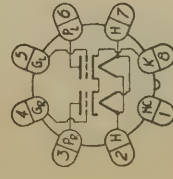


8A



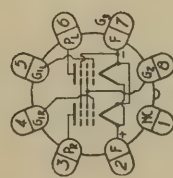
6A8
6A8GT Pin 1-SH
12A8GT

8B



6N7 Pin 1-SH

8C



8E

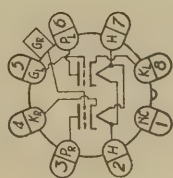


688 Pin 1-SH
12C8

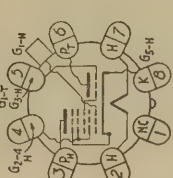
8F



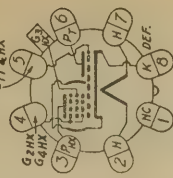
8G



8H

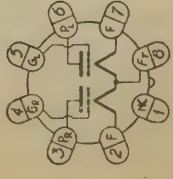


8K

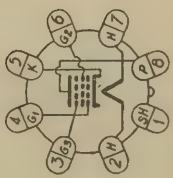


6K8 Pin 1-SH, DEF
6K8GT Pin 1-SH

8L



8N



8Q

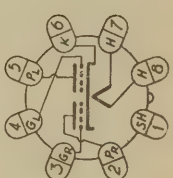


6SQ7 Pin 1-SH
12SQ7

8R



8S

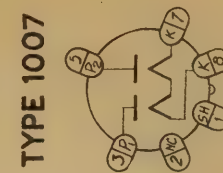
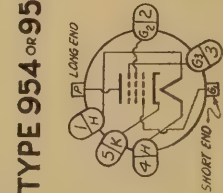
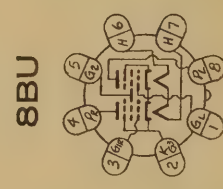
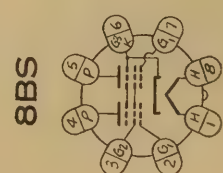
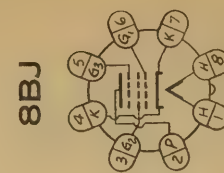
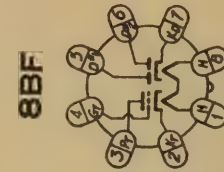
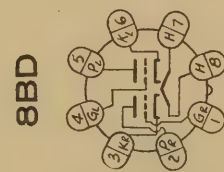
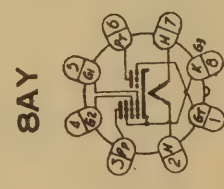
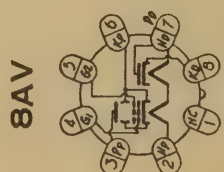
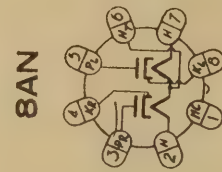
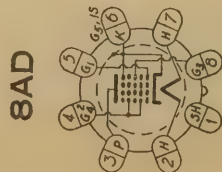
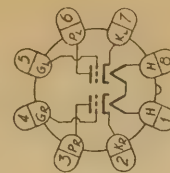
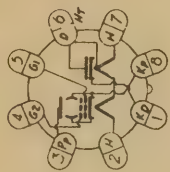
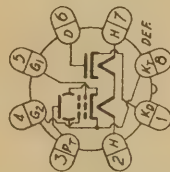
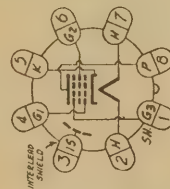
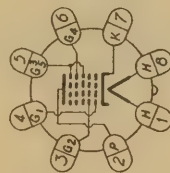
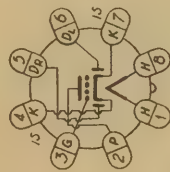


8T



8U





BASE CONNECTION DIAGRAMS
(VIEWED FROM BOTTOM OF BASE) (RMA NUMBERING SYSTEM)

TUBE SUBSTITUTION CHART

Before any tube substitution is attempted, the careful reading of the following explanatory information on the subject is essential.

The substitutions shown in this chart are successful in practically all cases. There conceivably could be a few instances where circuit sensitivity to slight differences in tube characteristics might prevent wholly satisfactory operation, or where the substitute tube type may have shorter life than the original even though operation is satisfactory. It is impossible, however, to cover all the exceptions because of the many deviations in circuit design.

There are a number of tube types for which this chart offers no substitutes. These types have, however, been listed in the event the user should discover a suitable substitute. The information may then be entered on the chart.

Cross reference in the chart will be found quite complete but not always reversible. For example, detector diodes such as type 6H6GT should not be substituted for power diodes such as 6X5GT since the substitute would be extremely short-lived in this application.

In most cases types of the 6-volt series have identical counterparts in the 12-volt series, the only difference being in heater voltage. As examples: except for heater ratings a 6SK7GT is the same as a 12SK7GT; and a 7A7 is the same as a 14A7. Rare exceptions to this rule to be noted are:

α 6B8 is similar to α 12C8, *not* α 12B8;

α 6A7 is not similar to α 12A7.

★ ★

Where series connection of heaters is used, care must be taken to insure the correct amount of current through each heater when the substitute has a different heater current than the original. If the current is too high, tube life will be shortened. If the current is too low, operation may not be satisfactory. Compensating resistors therefore must be added to adjust the current. The following two examples will assist in calculating these resistors:

1. To replace a 150-milliamperere tube, such as a 7B7, with a 300-milliamperere tube, such as a 7A7: The series heaters of the original tubes of the receiver have a normal current of 150 milliamperes. Since the substitute type operates at 300 milliamperes, shunt resistors must be connected across each of the other tubes. The value of each resistor must be equal to the heater resistance of the tube to which it is connected, i.e., the heater resistance of any tube $= \frac{\text{Heater Voltage}}{\text{Heater Current}}$. No resistor should be connected across the substitute tube. In addition, a ballast tube or resistor cord, when used in the receiver, must be replaced by a unit having half the resistance of the original.

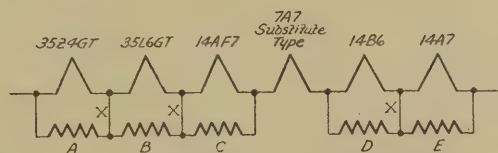


FIGURE (a)

Leads marked X in Figure (a) may be eliminated if care is observed that these are the only leads eliminated. This means that resistors A, B and C can be replaced with a single resistor equal to the sum of A, B and C. The same is true of resistors D and E.

★ ★

2. To replace a 300-milliamperere tube, such as 7A7, with a 150-milliamperere tube, such as a 7B7: The series heaters of the original tubes in the set have a current of 300 milliamperes. Since the substitute tube operates at 150 milliamperes, a shunt resistor equal in value to the resistance of the tube must be connected across it. The heater resistance of the 7B7 tube is equal to $\frac{\text{Heater Voltage}}{\text{Heater Current}} = \frac{6.3}{0.15} = 42$ ohms. See Figure (b).

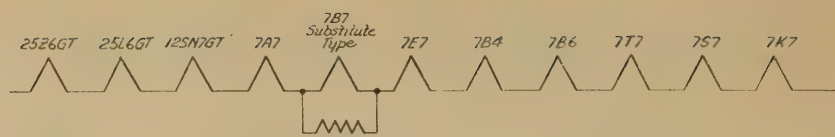


FIGURE (b)

The parallel combination will then pass twice the current of the tube, so that 150 milliamperes flow through the tube and 150 milliamperes through the 42-ohm shunting resistor. The current, flowing through the other tubes, will then be the same as in the original circuit.

★ ★

There are a number of cases where remote cutoff and sharp cutoff tubes may be interchanged. In some cases this may cause slight differences in the operation of the automatic volume control of the receiver. Metal, "G," "GT" and "GT/G" types are all directly interchangeable, although occasionally a tube shield may be necessary to prevent oscillation. Space limitations may prevent the use of the "G" types in certain installations.

★ ★

An adapter is strongly recommended in place of changing or reconnecting the socket. The use of the adapter permits the installation of the original tube type at a later date and avoids confusion in the use of published circuits for subsequent servicing. However, there will be some cases where necessary room for an adapter is not available, thereby requiring a change of the socket.

Many commercial adapters for substitute types are readily available, but an adapter can be easily assembled by the serviceman to meet his own requirements. The following suggestions on adapter construction may be helpful:

The use of a bakelite socket which fits snugly inside the top rim of the base makes a neater and more rugged wiring job. Number 20 tinned wire is ideal for connecting the top socket to the adapter base. Cut the leads about an inch longer than necessary, insulate with spaghetti to prevent short circuits, and pull leads taut when assembled. Cut leads flush with the end of the base pin, apply soldering flux and, holding the adapter upright, dip end of pin in a puddle of solder. A small hole drilled in the soldering iron tip will serve as a solder cup. Solder will flow up the pin, making a smooth, finished end. Where a top cap lead must be added, it should be shielded to avoid pick-up troubles.

The base diagrams of the original and substitute tube types should be used as a guide for the connection between the upper socket and the base adapter. Three examples are listed below to show the type of interconnection required:

- (1) 6SA7GT replacing a 7Q7
- | | | | | | | | | | |
|----------------------------------|---|--------------------------|---|---|---|---|---|---|---|
| Connect Top Socket Pin | → | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| to Bottom Base Pin | → | 5 | 1 | 2 | 3 | 4 | 7 | 8 | 6 |
| | | ↑ | | | | | ↑ | | |
| | | Connect 5 and 7 together | | | | | | | |

- (2) 6SQ7GT replacing a 75
- | | | | | | | | | | |
|----------------------------------|---|------------|-----|---|---|---|---|---|---|
| Connect Top Socket Pin | → | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| | | No | Top | | | | | | |
| to Bottom Base Pin | → | Connection | Cap | 5 | 4 | 3 | 2 | 6 | 1 |

- (3) 75 replacing 6SQ7GT
- | | | | | | | | | |
|----------------------------------|---|---|---|---|---|---|---|-----|
| Connect Top Socket Pin | → | 1 | 2 | 3 | 4 | 5 | 6 | Top |
| | | | | | | | | Cap |
| to Bottom Base Pin | → | 8 | 6 | 5 | 4 | 3 | 7 | 2 |

The continued operation of many receivers requiring tube types no longer readily available can be accomplished by the careful use of this tube substitution chart.

RAYTHEON

ORIGINAL	DIRECTLY INTER- CHANGEABLE	USE WITH ADAPTER	CHANGE OR ADD FIL VOLTAGE	ADAPTER PLUS FIL VOLT CHANGE
00A	01A, 40			
01A	00A, 40			
0A3	VR75/30			
0A4G				
0B3	VR90/30			
0C3	VR105/30			
0D3	VR150/30			
0Z4			6X5GT/G	7Y4, 84
0Z4A/1003			6X5GT/G	7Y4, 84
0Z4G			6X5GT/G	7Y4, 84
1A3		1R4/1294		
1A4	1B4	1D5G, 1E5G		
1A5GT/G	1Q5GT, 1T5GT, 1C5GT	1LA4, 1LB4, 3Q5GT		
1A6	1C6	1C7G, 1D7G		
1A7CT	1B7GT	1LA6, 1LC6		
1B4	1A4	1E5G, 1D5G		
1B5/25S		1H6G		
1B7CT	1A7GT	1LA6, 1LC6		
1B8CT				
1C5GT	1Q5GT, 1T5GT, 1A5GT	1LB4, 3Q5GT, 1LA4		
1C6	1A6	1C7G, 1D7G		
1C7G	1D7G	1A6, 1C6		
1D5G	1E5G	1A4, 1B4		
1D7G	1C7G	1A6, 1C6		
1D8CT				
1E4G	1G4GT, 1H4G	1LE3, 30		
1E5G	1D5G	1B4, 1A4		
1E7G		2-type 1F5G		
1F4		1F5G		

RAYTHEON

ORIGINAL	DIRECTLY INTER- CHANGEABLE	USE WITH ADAPTER	CHANGE OR ADD FIL VOLTAGE	ADAPTER PLUS FIL VOLT CHANGE
1F5G		1F4		
1F6		1F7G		
1F7G		1F6		
1G4CT	1E4G, 1H4G	1LE3, 30		
1G5G	1J5G	950		
1G6GT				
1H4G	1E4G, 1G4GT	1LE3, 30		
1H5GT/G		1LH4		
1H6G		1B5/25S		
1J5G	1G5G	950		
1J6G		19		
1I4				
1LA4		1A5GT		
1LA6	1LC6	1A7GT, 1B7GT		
1LB4	1LA6	1C5GT, 1Q5GT, 1T5GT, 3Q5GT, 1A5GT		
1LB6				
1LC5		1SA6GT		
1LC6	1LA6	1A7GT, 1B7GT		
1LD5		1SB6GT, 1S5		
1LE3		30, 1E4G, 1G4GT, 1H4G		
1LH4		1H5GT/G		
1LN5		1N5GT/G		
1N5GT/G		1LN5		
1N6GT				
1P5GT/G				
1Q5GT	1C5GT, 1T5GT, 1A5GT	1LB4, 3Q5GT, 1LA4		
1R4/1294		1A3		
1R5				
1S4				

READ EXPLANATORY NOTES (ON PAGE 35) BEFORE ATTEMPTING TUBE SUBSTITUTION

RAYTHEON

RAYTHEON

ORIGINAL	DIRECTLY INTER- CHANGEABLE	USE WITH ADAPTER	CHANGE OR ADD FIL VOLTAGE	ADAPTER PLUS FIL VOLT CHANGE
1S5		1SB6GT, 1LD5		
1SA6CT		1LC5		
1SB6CT		1LD5, 1S5		
1T4				
1T5CT	1Q5GT, 1C5GT, 1A5GT	1LB4, 3Q5GT, 1LA4		
1V			12Z3	
2A3	45		6A3	6B4G, 6A5G
2A4G				
2A5			42, 41	6K6GT/G, 6Y6G, 6F6G, 7B5, 7C5
2A6			75	6SQ7GT, 6Q7GT, 6T7G, 6Q6G, 7K7, 7C6, 7B6, 6B6G
2A7			6A7	6A8GT, 6D8G, 7A8, 6J8G, 7S7, 7B8, 7I7
2B7			6B7	6B8GT, 7E7
2C21				
2C22				
2C26				
2E5			6E5	
2W3CT				
3A4				
3A5				
3A8CT				
3B5CT		3S4		
3B7/1291		3A5		
3C5CT		3LE4		
3D6/1299	3LF4	3Q5GT, 3Q4		
3LE4		3C5GT		

ORIGINAL	DIRECTLY INTER- CHANGEABLE	USE WITH ADAPTER	CHANGE OR ADD FIL VOLTAGE	ADAPTER PLUS FIL VOLT CHANGE
3LF4	3D6/1299	3Q5GT, 3Q4		
3Q4		3Q5GT, 3LF4, 3D6/1299		
3Q5CT/G		3Q4, 3LF4, 3D6/1299		
3S4				
4A6G				
5R4CY				
5T4	5U4G	5Z3, 5X4G		
5U4G	5T4	5Z3, 5X4G		
5V4G	5Z4GT, 5W4GT 5Y3GT	83V, 5Y4G, 5X3, 80		
5W4CT/G	5Y3GT/G, 5V4G, 5Z4GT	80, 5Y4G, 5X3, 83V		
5X3	80, 83V	5Y3GT, 5W4GT, 5V4G, 5Y4G, 5Z4GT		
5X4G		5Z3, 5U4G, 5T4		
5Y3CT/G	5W4GT/G, 5V4G, 5Z4GT	80, 5Y4G, 5X3, 83V		
5Y4G		5X3, 5Y3GT, 80, 83V, 5W4G, 5V4G, 5Z4GT		
5Z3		5U4G, 5X4G, 5T4		
5Z4CT	5V4G, 5Y3GT, 5W4GT	83V, 5Y4G, 5X3, 80		
6A3		6B4G, 6AG5	45, 2A3	
6A4/LA	52			
6A5G	6B4G	6A3	45, 2A3	
6A6		6N7GT/G	53	
6A7		6A8GT, 6J8G, 6D8G, 7S7, 7I7, 7A8, 7B8	2A7	12A8GT, 14B7, 14I7, 14S7
6A8CT	6D8G	7A8, 7B8, 6A7	2A7, 12A8GT	14B8, 14I7, 14S7
6AB5-6N5	6E5		2E5	
6AB6G	6N6G	6B5		
6AB7/1853		7V7, 7W7		14W7
6AC5CT/G				

READ EXPLANATORY NOTES (ON PAGE 35) BEFORE ATTEMPTING TUBE SUBSTITUTION

RAYTHEON

ORIGINAL	DIRECTLY INTER- CHANGEABLE	USE WITH ADAPTER	CHANGE OR ADD FIL VOLTAGE	ADAPTER PLUS FIL VOLT CHANGE
6AC6G				
6AC7/1853				
6AD5G		6SF5GT, 6K5GT, 6F5GT, 7B4		12SF5GT, 12F5GT
6AD6G				
6AD7G				
6AE5GT/G				
6AE6G				
6AE7GT				
6AF5G	6P5GT			27
6AF6G				
6AC5	6AK5	717A		
6AC7				
6AH5G		6L6G, 6AL6G		
6AH7GT		6SN7GT, 7N7, 6F8G	12AH7GT	14N7 14AF7, 12SN7GT
6AK5	6AG5	717A		
6AK6		6G6G		
6AL6G		6L6G, 6AH5G		
6B4G	6A5G	6A3		45, 2A3
6B5		6N6G, 6AB6G		
6B6G	6T7G-6Q7G, 6Q7GT	6SQ7GT, 7B6, 7C6, 75, 7K7		2A6, 14B6, 12SQ7GT, 12Q7GT
6B7		6B8GT, 7E7	2B7	12SF7, 12C8, 14E7
6B8GT		6B7, 7E7		2B7, 12SF7, 12C8, 14E7
6C4		6J5GT, 7A4, 6C5G, 6L5G		14A4, 12J5GT
6C5GT/G	6J5GT/G, 6L5G	7A4, 6C4		14A4, 12J5GT
6C6	77, 6D6, 78	6J7GT, 6SJ7GT, 7C7, 6W7G, 6K7GT, 6SK7GT, 7B7, 6SS7, 6U7G, 7A7, 6S7G	57, 58	12J7GT, 12SJ7GT, 12SK7GT, 12K7GT, 14A7/12B7, 14C7
6C8G		6SL7GT, 7F7, 6SC7GT		

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ORIGINAL	DIRECTLY INTER- CHANGEABLE	USE WITH ADAPTER	CHANGE OR ADD FIL VOLTAGE	ADAPTER PLUS FIL VOLT CHANGE
6D6	78, 77, 6C6	6J7GT, 6SJ7GT, 7C7, 6W7G, 6K7GT, 6SK7GT, 7B7, 6SS7, 6U7G, 7A7, 6S7G	57, 58	12J7GT, 12SJ7GT, 12SK7GT, 12K7GT, 14A7/12B7, 14C7
6D8G	6A8GT, 6J8G	6A7, 7A8, 7B8, 7J7, 7S7	2A7	
6E5	6AB5-6N5		2E5	
6E6				
6F5GT		6K5G, 6SF5GT, 7B4, 6AD5G		
6F6GT/G	6K6GT/G, 6V6GT/G	42, 41, 7C5, 7B5	2A5	14C5
6F7		6P7G		
6F8G		6SN7GT, 7N7, 6AH7GT		14N7, 12SN7GT
6C6G		6AK6		
6H4GT				
6H6GT/G	6X5GT/G, 6ZY5G	7A6, 7Y4, 7Z4, 84	12H6	14Y4
6J5GT/G	6C5GT, 6L5G	6C4, 7A4	12J5GT	14A4
6J6				
6J7CT	6W7G, 6S7G, 6U7G	6SJ7GT, 77, 7A7, 7B7, 7C7, 6C6, 6D6, 78, 6SK7GT, 6SS7	12J7GT, 12K7GT	12SJ7GT, 12SK7GT, 14C7, 58, 57, 14A7/12B7
6J8G	6A8GT, 6D8G	7J7, 7A8, 7B8, 7S7, 6A7	12A8GT	2A7, 14B8, 14J7, 14S7
6K5GT		7B4, 6AD5G, 6F5GT, 6SF5GT		12SF5GT, 12F5GT
6K6GT/G	6F6GT/G, 6V6GT/G	41, 42, 7B5, 7C5	2A5	14C5
6K7GT	6S7G, 6U7G, 6W7G	7A7, 7B7, 6SK7GT, 6D6, 78, 6SS7, 6C6, 6SJ7GT, 77	12J7GT, 12K7GT	12SK7GT, 12SJ7GT, 14A7/12B7, 14C7, 58, 57
6K8GT			12K8GT	
6L5G	6J5GT/G, 6C5GT	6C4, 7A4		14A4, 12J5GT
6L6G		6AH5G, 6AL6G		
6L7G				
6M8GT				

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ORIGINAL	DIRECTLY INTER- CHANGEABLE	USE WITH ADAPTER	CHANGE OR ADD FIL VOLTAGE	ADAPTER PLUS FIL VOLT CHANGE
6N6C	6AB6G	6B5	25N6G	25B5
6N7CT/G		6A6		53
6P5CT	6AF5G	76		
6Q7CT	6T7G/6Q8G	6SQ7GT, 7B6, 7C6, 7S	12Q7GT	12SQ7GT, 2A6, 14B6
6R7CT		6SR7GT, 6ST7, 7E6		12SR7GT, 14E6
6S7C	6K7GT, 6U7G, 6W7G	7A7, 7B7, 6SK7GT, 6D6, 78, 6SS7, 77, 7C7, 6SJ7GT	12K7GT, 12J7GT	12SK7GT, 58, 57, 12SJ7GT, 14C7, 14A7/12B7
6SA7CT/G		7Q7	12SK7GT	14Q7
6SC7CT	6SL7GT	7F7, 6C8G	12SL7GT, 12SC7	14F7
6SD7CT	6SE7GT, 6SG7, 6SH7GT	7G7, 7H7, 7L7, 7T7	12SG7, 12SH7GT	14H7
6SE7CT	6SD7GT, 6SG7, 6SH7GT	7G7, 7H7, 7L7, 7T7	12SG7, 12SH7GT	14H7
6SF7		7B4, 6AD5G, 6F5GT, 6K5GT	12SF5GT	12F5GT
6SG7	6SH7GT, 6SD7GT, 6SE7GT	7E7, 6B7, 6B8GT	12SF7	2B7, 14E7, 12C8
6SH7CT	6SG7, 6SD7GT, 6SE7GT	7G7, 7H7, 7L7, 7T7	12SG7, 12SH7GT	14H7
6SJ7CT/G	6SS7, 6SK7GT	6J7GT, 6W7G, 7C7, 6C6, 77, 6K7GT, 6U7G, 6S7G, 78, 7A7, 7B7, 6D6	12SJ7GT, 12SK7GT	12J7GT, 12K7GT, 14C7, 58, 57, 14A7/12B7
6SK7CT/G	6SS7, 6SJ7GT	6J7GT, 6W7G, 7C7, 6C6, 77, 6K7GT, 6U7G, 6S7G, 78, 7A7, 7B7, 6D6	12SK7GT, 12SJ7GT	12J7GT, 12K7GT, 14C7, 58, 57, 14A7/12B7
6SL7CT	6SC7GT	7F7, 6C8G	12SL7GT, 12SC7	14F7
6SN7CT		6AH7GT, 6F8G, 7N7	12SN7GT	14N7, 14AF7, 12AH7GT
6SQ7CT/G		6T7, 6Q6G, 6Q7GT, 7B6 6B6G, 75, 7K7, 7C6		2A6
6SR7CT	6ST7	6R7GT, 7E6	12SR7GT	14E6
6SS7	6SK7GT, 6SJ7GT	6K7GT, 6S7G, 6U7G, 6D6, 78, 7B7, 7A7, 6J7GT, 6W7G, 77, 7C7, 6C6	12SK7GT, 12SJ7GT	58, 12K7GT, 14C7, 14A7/12B7, 57, 12J7GT

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ORIGINAL	DIRECTLY INTER- CHANGEABLE	USE WITH ADAPTER	CHANGE OR ADD FIL VOLTAGE	ADAPTER PLUS FIL VOLT CHANGE
6ST7	6SR7GT	6R7GT, 7E6	12SR7GT	14E6
6T7G-6Q6G	6B6G, 6Q7GT	6SQ7GT, 7B6, 7C6, 7K7, 7S	12Q7GT	2A6, 14B6, 12SQ7GT
6U5-6C5				
6U6GT	6W6GT, 6Y6G	7A5	12A6GT	14A5
6U7C	6K7GT, 6S7G, 6W7G, 6J7GT	6D6, 6SK7GT, 6SS7, 7A7, 78, 6C6, 6SJ7GT, 77, 7B7, 7C7	12K7GT, 12J7GT	14A7/12B7, 14C7, 12SK7GT, 12SJ7GT, 58, 57
6V6CT/G	6K6GT, 6F6GT	7C5, 41, 42, 7B5		2A5
6V7C		85		55
6W5C	6X5GT/G, 0Z4, 6ZY5G	7Y4, 7Z4, 84		14Y4
6W6CT	6U6GT, 6Y6G	7A5	12A6GT	14A5
6W7C	6J7GT, 6K7GT, 6S7G	77, 6C6, 7C7, 6SS7, 6SJ7GT, 7A7, 7B7, 6SK7GT, 6D6, 78	12J7GT, 12K7GT	12SJ7GT, 12SK7GT, 14A7/12B7, 14C7, 58, 57
6X5CT/G	6W5G, 0Z4, 6ZY5G	84, 7Y4, 7Z4		
6Y6C	6U6GT, 6W6GT	7A5	12A6GT	14A5
6Y7C		79		
6Z7C				
6ZY5C	6X5GT/G, 6W5G, 0Z4	7Y4, 7Z4, 84		14Y4
7A4		6J5GT, 6L5G, 6C4, 6C5GT	14A4	12J5GT
7A5		6U6GT, 6Y6G, 6W6GT	14A5	12A6GT
7A6	7Y4, 7Z4	6H6GT/C, 6X5GT/G, 6ZY5G, 84	14Y4	
7A7	7B7, 7C7	6SK7GT, 6SS7, 6D6, 6K7GT, 6S7G, 6U7G, 78, 77, 6C6, 6J7GT, 6SJ7GT, 6W7G	14A7/12B7, 14C7	12K7GT, 12SJ7GT, 12J7GT, 12SK7GT, 57, 58
7A8	7B8, 7S7, 7J7	6A7, 6A8GT, 6D8G, 6J8G	14B8, 14J7, 14S7	2A7, 12A8GT
7B4		6AD5G, 6SF5GT, 6F5GT, 6K5GT		12SF5GT, 12F5GT
7B5	7C5	6K6GT, 6F6GT, 41, 6V6GT, 42		2A5, 14C5

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ORIGINAL	DIRECTLY INTER- CHANGEABLE	USE WITH ADAPTER	CHANGE OR ADD FIL VOLTAGE	ADAPTER PLUS FIL VOLT CHANGE
7B6	7C6	6SQ7GT, 6T7G-6Q8G, 6B6G, 6Q7GT, 7K7, 75	14B6	2A6, 12SQ7GT, 12Q7GT
7B7	7A7, 7C7	6SK7GT, 6SS7, 6D6, 6K7GT, 6S7G, 6U7G, 78, 77, 6C6, 6J7GT, 6S7GT, 6W7G	14A7/12B7, 14C7	58, 12K7GT, 12J7GT, 12SK7GT, 12S7GT, 57
7B8	7A8, 7S7, 7J7	6A7, 6A8GT, 6D8G, 6J8G	14B8, 14J7, 14S7	2A7, 12A8GT
7C5	7B5	6K6GT, 6V6GT, 41, 42, 6F6GT	14C5	2A5
7C6	7B6	6B6G, 6Q7GT, 6SQ7GT, 7K7, 6T7G-6Q8G, 75	14B6	2A6, 12SQ7GT, 12Q7GT
7C7	7A7, 7B7	77, 6C6, 6S7GT, 78, 6J7GT, 6W7G, 6SS7G, 6K7GT, 6SK7GT, 6S7G, 6U7G, 6D6	14A7/12B7, 14C7	12S7GT, 12SK7GT, 12K7GT, 12J7GT, 57, 58
7E5				
7E6		6R7GT, 6S7, 6SR7GT	14E6	12SR7GT
7E7		6B8GT, 6B7	14E7	2B7, 12C8, 12SF7
7F7		6C8G, 6SL7GT, 6SC7GT	14F7	12SL7GT, 12SC7
7G7/1232	7H7, 7L7, 7T7	6SG7, 6SH7GT, 6SD7GT, 6SE7GT	14H7	12SG7GT, 12SH7GT
7H7	7G7, 7L7, 7T7	6SG7, 6SH7GT, 6SD7GT, 6SE7GT	14H7	12SG7GT, 12SH7GT
7J7	7A8, 7B8, 7S7	6A7, 6A8GT, 6D8G, 6J8G	14J7, 14B8, 14S7	2A7, 12A8GT
7K7		7B6, 7C6, 6SQ7GT, 6B6G, 6T7G-6Q8G, 6Q7GT, 75	14B6	2A6, 12SQ7GT, 12Q7GT
7L7	7G7, 7H7, 7T7	6SG7, 6SH7GT, 6SD7GT, 6SE7GT	14H7	12SG7, 12SH7GT
7N7		6F8G, 6SN7GT, 6AH7GT,	14N7, 14AF7	12SN7GT, 12AH7GT
7Q7		6SA7GT/G	14Q7	12SA7GT
7R7			14R7	
7S7	7J7, 7A8, 7B8	6A7, 6A8GT, 6D8G, 6J8G	14S7, 14J7, 14B8	2A7, 12A8GT
7T7	7L7, 7G7, 7H7	6SG7, 6SH7GT, 6SD7GT, 6SE7GT	14H7	12SG7, 12SH7GT
7V7		6AB7/1853	14W7	

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ORIGINAL	DIRECTLY INTER- CHANGEABLE	USE WITH ADAPTER	CHANGE OR ADD FIL VOLTAGE	ADAPTER PLUS FIL VOLT CHANGE
7W7		6AB7/1853	14W7	
7Y4	7Z4	84, 6W5G, 6X5GT/G, 0Z4, 6ZY5G	14Y4	
7Z4	7Y4	6X5GT/G, 6ZY5G, 0Z4, 84, 6W5G	14Y4	
10				
12A	71A			
12A6GT		14A5		
12A7				
12A8GT		14B8, 14J7, 14S7	6A8GT, 6D8G, 6J8G	2A7, 6A7, 7B8, 7J7, 7A8, 7S7
12AH7CT		12SN7GT, 14N7	6AH7GT	6SN7GT, 7N7, 6F8G
12B8CT				
12C8		14E7	6B8GT	6B7, 7E7
12E5CT				
12F5CT		12SF5GT	6F5GT, 6K5GT	6SF5GT, 7B4, 6AD5G
12H6			6H6GT	7A6
12J5CT		14A4	6J5GT, 6C5G, 6L5G	6C4, 7A4
12J7CT	12K7GT	14C7, 14A7/12B7, 12S7GT, 12SK7GT	6J7GT, 6W7G, 6U7G, 6K7GT, 6S7G	6S7GT, 6SK7GT, 6SS7, 7C7, 6C8, 57, 77, 7A7, 7B7, 58, 78, 6D6
12K7CT	12J7GT	12SK7GT, 12S7GT, 14C7, 14A7/12B7	6J7GT, 6W7G, 6U7G, 6K7GT, 6S7G	6S7GT, 6SK7GT, 6SS7, 7C7, 6C8, 57, 77, 7A7, 7B7, 58, 78, 6D6
12K8CT			6K8GT	
12L8CT				
12Q7CT		12SQ7GT, 14B6	6Q7GT, 6T7G	7B6, 7C6, 75, 2A6, 6SQ7GT
12SA7CT/G		14Q7	6SA7GT	7Q7
12SC7	12SL7GT	14F7	6SC7GT	7F7, 6C8G, 6SL7GT
12SF5CT		12F5GT	6SF5GT	6F5GT, 6K5GT, 7B4, 6AD5G

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ORIGINAL	DIRECTLY INTER- CHANGEABLE	USE WITH ADAPTER	CHANGE OR ADD FIL VOLTAGE	ADAPTER PLUS FIL VOLT CHANGE
12SF7		14E7, 12C8	6SF7	7E7, 6B8GT, 6B7
12SC7		14H7, 12SH7GT	6SG7, 6SH7GT, 6SD7GT	7H7, 7G7, 7L7, 7T7
12SH7CT		12SG7GT, 14H7	6SG7, 6SH7GT, 6SD7GT	7H7, 7G7, 7L7, 7T7
12SJ7GT/G	12SK7GT/G	12K7GT, 12J7GT, 14A7/12B7, 14C7	6SJ7GT, 6SS7, 6SK7GT	6J7GT, 6K7GT, 57, 77, 6C6, 7C7, 6W7G, 58, 78, 6D6, 6U7G, 6S7G, 7B7, 7A7
12SK7CT/G	12SJ7GT/G	12K7GT, 12J7GT, 14A7/12B7, 14C7	6SJ7GT, 6SS7, 6SK7GT	6J7GT, 6K7GT, 57, 77, 6C6, 7C7, 6W7G, 58, 78, 6D6, 6U7G, 6S7G, 7B7, 7A7
12SL7CT	12SC7	14F7	6SL7GT	6SC7GT, 7F7, 6C8G
12SN7CT		14AF7, 12AH7GT, 14N7	6SN7GT	6SH7GT, 7N7, 6F8G, 6AH7GT
12SQ7CT		14B6	6SQ7GT	6Q7GT, 6T7G, 7B6, 75
12SR7CT		14E6	6SR7GT, 6ST7	7E6
12Z3				
14A4		12J5GT	7A4	6J5GT, 6C6G, 6L5G
14A5		12A6GT	7A5	6U6GT, 6Y6G, 6W6GT
14A7/12B7	14C7	12SK7GT/G, 12K7GT, 12J7GT, 12SJ7GT	7A7, 7B7, 7C7	6D6, 78, 58, 6K7GT, 77, 6SK7GT, 6SS7, 6S7G, 6U7G, 57, 6K7GT, 7B7, 7A7, 6C6
14AF7	14N7	12AH7GT, 12SN7GT	7N7	6SN7GT, 6F8G, 6AH7GT
14B6		12SQ7GT/G, 12Q7GT	7B6, 7C6	75, 6T7G, 6Q7GT, 6SQ7G
14B8	14J7, 14S7	12A8GT	7B8, 7A8, 7J7, 7S7	6A7, 6A8GT, 6J8G, 6D8G, 2A7
14C5			7C5, 7B5	6V6GT/G, 6K6GT, 41, 42, 6F6GT, 2A5

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ORIGINAL	DIRECTLY INTER- CHANGEABLE	USE WITH ADAPTER	CHANGE OR ADD FIL VOLTAGE	ADAPTER PLUS FIL VOLT CHANGE
14C7	14A7/12B7	12SJ7GT, 12J7GT, 12SK7GT, 12K7GT	7A7, 7B7, 7C7	57, 6C6, 6J7G, 6D6, 78, 58, 6K7GT, 6SK7GT, 6SS7, 6S7G, 6U7G, 6S7G, 6K7G, 7B7, 7A7
14E6		12SR7GT	7E6	6SR7GT, 6ST7
14F7		12C8, 12SF7	7E7	6SF7, 6B7, 6B8GT
14F7		12SC7GT, 12SL7GT	7F7	6SL7GT, 6SC7GT, 6C8G
14H7		12SG7, 12SH7GT	7H7, 7G7, 7L7, 7T7	6SD7GT, 6SG7, 6SH7GT
14J7	14B8, 14S7	12A8GT	7J7, 7A8, 7B8, 7S7	6A8GT, 6D8G, 6A7, 2A7, 6J8G
14N7	14AF7	12AH7GT, 12SN7GT	7N7	6SN7GT, 6AH7GT, 6F8G
14Q7		12SA7GT	7Q7	6SA7GT
14R7			7R7	
14S7	14B8, 14J7	12A8GT	7S7, 7A8, 7B8, 7J7	6A8GT, 6D8G, 6A7, 6J8G, 2A7
14W7			7W7	6AB7/18S3
14Y4			7Y4, 7Z4	84, 6X5GT, 6W5G, 0Z4
15				
19		1J6G		
20				
22				
24A	35/51			
25A6GT/G		43		
25A7GT/G				
25AC5GT				
25B5		25N6G		
25B8G				
25B8CT				
25C6G			50C6G	

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ORIGINAL	DIRECTLY INTER- CHANGEABLE	USE WITH ADAPTER	CHANGE OR ADD FIL VOLTAGE	ADAPTER PLUS FIL VOLT CHANGE
25D8CT				
25L6GT/G			50L6GT	50A5
25N6G		25B5		
25X6CT	25Z6GT/G	25Z5	50Y6GT, 50Z6G	
25Y4CT	25Z4			
25Z4	25Y4GT			
25Z5		25Z6GT, 25X6GT		50Y6GT, 50Z6G
25Z6GT	25X6GT	25Z5	50Y6GT, 50Z6GT	
26				
27	56		37, 76	6AF5G, 6P5GT
28D7				
28Z5				
30		1E4G, 1H4G, 1LE3, 1G4G		
31				
32	34			
32L7CT				
33				
34	32			
35/51	24A			
35A5		35L6GT		
35L6CT/G		35A5		
35Y4		35Z5GT/G		
35Z3		35Z4GT		
35Z4CT		35Z3		
35Z5CT/G		35Y4		
35Z6CT/G				
36	39/44			
37	76		27, 56	6AF5G, 6P5GT
38				

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ORIGINAL	DIRECTLY INTER- CHANGEABLE	USE WITH ADAPTER	CHANGE OR ADD FIL VOLTAGE	ADAPTER PLUS FIL VOLT CHANGE
39/44	36			
40	01A, 00A			
41	42	6K6GT/G, 6V6GT, 6F6GT, 7B5, 7C5	2A5	14C5
42	41	6F6GT, 6V6GT, 7B5, 7C5, 6K6GT	2A5	14C5
43		25A6GT/G		
45	2A3		6A3	6B4G, 6A5G
45Z3				
45Z5GT				
46				
47		2A5		41, 42, 6V6GT, 6F6GT, 7B5, 7C5, 6K6GT
48				
49				
50				
50A5		50L6GT		25L6GT
50C6G			25C6G	
50L6CT		50A5	25L6GT	
50Y6CT/G	50Z6G		25Z6GT	
50Z6G	50Y6GT/G		25Z6GT	
50Z7G	50Y6GT/G			
52	6A4/1A			
53			6A6	6N7GT
55			85	6V7G
56	27		76, 37, 6P5GT, 6AF5G	
57	58		77, 6C6, 6D6, 78	7C7, 6J7GT, 6W7G, 6S7GT, 12J7GT, 12SJ7GT, 12SK7GT, 6SK7GT, 12K7GT, 14A7/12B7, 14C7, 6K7GT, 6U7G, 7A7, 6SS7, 7B7, 6S7G

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ORIGINAL	DIRECTLY INTER- CHANGEABLE	USE WITH ADAPTER	CHANGE OR ADD FIL VOLTAGE	ADAPTER PLUS FIL VOLT CHANGE
58	57		77, 6D6, 6C6, 78	7C7, 6J7GT, 6W7G, 6SJ7GT, 12J7GT, 12SJ7GT, 12SK7GT, 6SK7GT, 12K7GT, 14A7/12B7, 14C7, 6K7GT, 6U7G, 7A7, 6SS7, 7B7, 6S7G
59				
70A7GT		70L7GT		
70L7GT		70A7GT		
71A	12A			
75		6T7G-6Q6G, 7K7, 6B6G, 7B6, 7C6, 6Q7GT, 6SQ7GT	2A6	
VR75/30	0A3			
76	37	6P5GT, 6AF5G	56, 27	
77	6C6, 78	6SK7GT, 6SJ7GT, 6K7GT, 6J7GT, 7B7, 6SS7, 6S7G, 7A7, 6W7G, 6U7G, 7C7	57, 58	12J7GT, 12SJ7GT, 12K7GT, 12SK7GT, 14A7/12B7, 14C7
78	6C6, 77	6SK7GT, 6SJ7GT, 6K7GT, 6J7GT, 7B7, 6SS7, 6S7G, 7A7, 6W7G, 6U7G, 7C7	58, 57	12J7GT, 12SJ7GT, 12K7GT, 12SK7GT, 14A7/12B7, 14C7
79		6Y7G		
80	5X3	5W4GT, 5Y4G, 5Y3GT		
81				
82				
83				
83V		5Z4GT, 5V4G		
84/6Z4	0Z4	6X5GT/G, 6ZY5G, 6W5G, 7Y4, 7Z4		
85		6V7G	55	
89		41		
VR90/30	0B3			
99				
VR105/30	0C3			
117L/M7GT		117N7GT, 117P7GT		

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ORIGINAL	DIRECTLY INTER- CHANGEABLE	USE WITH ADAPTER	CHANGE OR ADD FIL VOLTAGE	ADAPTER PLUS FIL VOLT CHANGE
117N7GT		117L/M7GT, 117P7GT		
117P7GT		117L/M7GT, 117N7GT		
117Z4CT				
117Z6CT				
VR150/30	0D3			
717A		6AK5, 6AG5		
950		1J5G, 1G5G		
954		9001		
955		9002		
956		9003		
957				
CK1003/ 0Z4A			6X5GT/G	7Y4, 84
1005/ CK1005				
1006/ CK1006				
CK1007				
1201				
1203				
1231	7V7, 7W7			
1284				
1291	3B7/1291			
1293				
1294	1R4/1294			
1299	3D6/1299			
2050				
2051				
9001		954		
9002		955		
9003		956		
9006		9001, 9002, 9003		

READ EXPLANATORY NOTES (ON PAGE 35) BEFORE ATTEMPTING TUBE SUBSTITUTION



RAYTHEON

MANUFACTURING COMPANY

RADIO RECEIVING TUBE DIVISION
CHAPEL STREET · NEWTON · 58 · MASS.